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ADDRESSES.

THE RISE, PROGRESS AND PRESENT NEEDS OF PEDIATRICS.

Address of the Chairman of the Section on Diseases of Children at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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The honor which you have done me in electing me your chairman brings with it the duty of opening the session with an address. I have chosen as my subject one of great importance to us, one in which I have felt great interest and to which I have given considerable thought during a number of years, and I dwell on it now hoping to awaken in you, if need be, an equal interest in the matter, and that together we may aid in advancing the position of the branch of medical science which we represent today. The subject to which I refer treats of the rise of pediatrics as a specialty, its present position as compared with its past and its needs for future growth. I can give you but an incomplete sketch, lacking in very many of the most important details.

One is often surprised that our medical forefathers knew so much. One is also surprised that they knew so little, and yet were undoubtedly useful members of society. They had the distinct advantage over us that each man, if well trained, knew all of everything medical that there was to be known. This was because there was not so much to know. The enormous additions to medical knowledge which went on as years passed rendered the arising of specialties in medicine an absolute necessity, yet it appears strange that pediatrics should seem to have developed so slowly as a special department. That no special teaching of it was given in any medical schools was probably due to the grave mistake of viewing the child only as a little man, of imagining that the teaching of the "Principles and Practice of Medicine" gave ample preparation for the encountering and mastering of the infant's disorders, and later of making the curious assumption that because a physician understood the diseases of women he must therefore necessarily have special cognizance of diseases of children—a view still prevalent in some quarters but waning rapidly.

But as a matter of fact the recognition of diseases of children as a specialty was developing long before the fact was appreciated. The branch has existed always. Every practitioner of every age had to learn it to some extent, although unfortunately this was accomplished often only at the expense of the lives of his little patients. The urgent demand for post-graduate instruction less costly of life than this was followed naturally by the production of special text-books, by the development of journal literature on pediatric subjects, and finally, and much later, by the establishment of special hospitals for children, of special medical societies to study their diseases, and of special instruction given to undergraduates—a much better plan than that of trusting to that expensive teacher, Experience.

Let us look briefly at the development of pediatrics in these different respects.

Text-books.—Many matters in the domain of diseases of children are treated of in the works of the ancients, but the first book devoted solely to the subject, as far as I can learn, was written by Demetrius of Apamia about 260 B.C., and was entitled "De morbis puerorum." Then in the Middle Ages we find a work by El Rhazi, about the end of the ninth century, A.D., called "De ægritudinibus puerorum." In 1472 appeared the work of P. Bagellardus of Fiume, "De ægritudinibus et remediis infantum," and in 1473 Metlinger's book "Ein vast nutzlich Regiment der junger Kinder," which, according to Hennig, was the first printed book upon the diseases of children. The first book about children written in England was by Th. Payn, 1569, entitled "The Regiment of Life; whereunto is added a Book of Children." In 1653 Pemel wrote "De morbis puerorum," and some time before 1639 Harris published "De morbis acutis infantum." Sydenham, in a letter to Harris, said: "Without flattery, you are the first man I ever envied: and it is my belief that your little book will be more useful to mankind than all I have written."

Very many books in this department of medical science have appeared in Europe since these times, and, as years passed, the rate of appearance constantly increased. In recent years, from the classic "*Handbuch*," edited by Gerhardt, down to the valuable "*Traité*," edited by Grancher and his associates, and just completed, the large number of books on pediatrics of all sizes and range which have been issued bears ample testimony to the great interest in the subject taken by writers and readers abroad.

The development of text-book literature on diseases of children in the United States is even more interesting to us. This matter was so exhaustively reviewed by Adams that I shall touch it only briefly, and refer you to his valuable paper for fuller details. The first pediatric monograph appears to have been by Charles Caldwell, written in 1796, and entitled "An Attempt to Establish the Original Sameness of Three Phenomena of Fever (principally confined to infants and children) described by Medical Writers under the Several Names of Hydrocephalus Internus, Cynanche Trachealis and Diarrhea Infantum." The first book especially devoted to children was published in 1790. This was written by a layman (or rather a lay-woman) and was called "The Maternal Physician." The first book on pediatrics by a physician was entitled "Practical Observations on Dis-

eases of Children, etc.," and was written by George Logan in 1825. In the same year the celebrated Dr. Wm. P. Dewees, so well known as one of the earlier eminent American physicians, published his work on children's diseases. From this date onward the American books upon pediatrics have been rapidly multiplying. Among them may be mentioned the works of Condie, Eberle, Meigs, Lewis Smith, Jacobi, Rotch and Holt, not forgetting the "Cyclopædia of the Diseases of Children," edited by Keating, the only work of the sort in the English language, and one of which we can justly be proud.

Pediatric Journals.—With regard to medical journals devoted to diseases of children, the first of which I can learn was one denominated *Archiv. für die Geburtshilfe, Frauenzimmer-und-neugeborner Kinderkrankheiten*. This was issued in 1787. The first journal devoted exclusively to diseases of children appears to have been *Analekten über Kinderkranheiten*, which was commenced in 1834. Neither of these journals is longer current. Since this time there have been numerous journals started, some of them still existing. I count at present four in German, the oldest being the well-known *Jahrbuch für Kinderheilkunde*, begun in 1857. The other three are, in order, the *Archiv f. Kinderheilkunde*, the *Kinderarzt*, and the *Centralblatt f. Kinderheilkunde*. There are four in French, of which the oldest is the *Revue mensuelle des Maladies de l'Enfance*, started in 1883, and the others, in order, the *Journal de Clinique et de Therapeutique Infantile*, the *Annales de Médecine et Chirurgie Infantiles*, and the *Archives de Médecine des Enfants*. There are one in Italian, *La Pediatria*, two in Spanish, the *Anales de Obstetricia, Ginecopatia y. Pediatria*, and the *Archivos de Ginecologia y. Pediatria*, and one in Russian, the *Dietskaya Meditsina*. All but the two Spanish journals are devoted exclusively to diseases of children. Curiously, of journals published in English, there is not one owned and edited in England.

The United States is well represented in journals treating in part or entirely of the diseases of children. The *American Journal of Obstetrics and Diseases of Women and Children* was first issued in 1868. From the beginning it included articles upon the diseases of children, and later it set aside special pages for this department. The *Archives of Pediatrics* was established in 1884, the *Annals of Gynæcology and Pediatry* in 1890, and *Pediatrics* in 1895.

It it evident, then, that journals treating specially of diseases of children, slow to start, show at present no dearth. Certainly this indicates the rapid strides which the interest in the subject has made nearly everywhere in the medical world.

Children's Hospitals.—Regarding hospitals for sick children, I find that the first of any sort appears to have been the Dispensary for Sick Children, founded in London by G. Armstrong, in 1769. It became extinct on Dr. Armstrong's death. It was intended only for out-patients, as was the one founded by Mastalier in Vienna in 1787. In 1802 the Maison de l'Enfant Jesus in Paris was changed, on the suggestion of Tenon, from an orphan asylum into a hospital for children of from two to fifteen years of age. This hospital, still in existence as the Hôpital des Enfants Malades, was the first institution designed solely for the care of sick children within its walls. It was not until thirty-two years later, in 1834, that the second hospital was founded—the Nicolas Children's Hospital in St. Petersburg. The development since the of similar institutions in different localities advanced at first only slowly, then moved rapidly. In 1852 the Great Ormond Street Hospital was founded in London. At that time, writes Dr. Charles West, there was no other hospital in England or America for diseases of children.

What a wonderful change since these early beginnings! Hospitals for sick children are scattered all through England, London alone having quite a number, and the cities of Continental Europe are thoroughly well supplied.

The first hospital to be started in the United States would appear to be the Nursery and Child's Hospital in New York, founded in 1854 and still in existence. Yet this institution was at first a maternity as well and the oldest hospital purely for children is undoubtedly the Children's Hospital in Philadelphia, which was established in 1855. Now a glance at the list of benevolent institutions in the United States fills one with astonishment at the number of general and special hospitals for children; the homes, asylums, sanitoria, etc., throughout the country, to say nothing of the children's wards connected with nearly all the general hospitals for adults.

Pediatric Societies.—Next let us consider the subject of medical societies for the study of diseases of children. All advance in this line has been very recent, leaving still much to be desired. Although England has numerous other special societies, such as a Balneological Society, a Medical Temperance Association, two Dermatological Societies, a Society of Anesthetists, etc., I have not yet been able to learn of a single organization devoted solely to pediatrics, out of 79 Provincial medical societies and 71 in London itself! The British Medical Association generally has a pediatric section; but not always, as for instance, at its meeting in 1897. There is not in Germany or Austria, as I am informed authoritatively by correspondents, a single independent society devoted to the study of diseases of children. The same has been true of France until within a few months. I have read very recently in the *Journal de Clinique et de Therapeutique Infantile*, that the hospital physicians of Paris are about to start a society of Infantile Medicine and Surgery. In Russia there appear to be two, one in St. Petersburg, started, as nearly as I can learn, in 1885, and one in Moscow, started, I believe, in 1892. Each publishes volumes of transactions. Of pediatric societies in other European countries I can not speak authoritatively, but I have heard of none. The Gesellschaft der Naturforscher und Aerzte has its pediatric section established in 1883 and meeting annually. The International Medical Congress has likewise a pediatric section. There was started in France in 1897 a Congress of Gynecology, Obstetrics and Pediatry, which is to meet annually. In Berlin, Dr. Baginski holds every two weeks, for the discussion of pediatric subjects, an informal gathering of men who have been his assistants.

This paucity of societies for the study of children's diseases in Europe, is in contrast with the manifestation of interest in this direction which the United States has shown, particularly recently. The AMERICAN MEDICAL ASSOCIATION established the Pediatric Section, whose session we are now attending, in 1880, with Dr. A. Jacobi as its first chairman. The amount of work done is instanced by the overcrowded program before us for our present meeting. There are, as you

notice, sixty-two papers announced, and we were obliged to refuse quite a number of applications on account of lack of time to have the papers read. When we consider that the ASSOCIATION is meeting this year over two thousand miles from the more densely populated Eastern States, the activity and interest in pediatric studies which the program shows is really astonishing.

In 1860 an attempt was made by the New York Academy of Medicine to form a Section for Diseases of Children, but after a few meetings it was abandoned. Years later, in 1887, the present Pediatric Section was started, with Dr. J. Lewis Smith as its first chairman. This organization contains many of the leading writers on children's diseases in the country. It has always been a very active one and has issued a large amount of valuable matter.

The American Pediatric Society was established in 1888, with Dr. A. Jacobi as its first president. It has from its origin been an exceedingly active organization. Its volumes of Transactions contain a large amount of valuable scientific work and are appreciated at home and abroad.

The Pan-American Medical Congress was founded in 1893, with a pediatric among its other sections, and Dr. John M. Keating as the first chairman of this section.

This covers the national pediatric associations. Recently there have been established some State societies. The Ohio State Pediatric Society, meeting once a year, held its first meeting in May, 1895, with Dr. S. L. McCurdy as its first president; and the Indiana State Pediatric Society, likewise meeting yearly, was organized in December, 1897, with Dr. P. J. Barcus as its first president, and holds its first meeting this year. I know of no other State societies up to the present time.

Of independent city societies for the study of children's diseases, there is in St. Louis the Bethesda Pediatric Society, which was organized in the autumn of 1895 with Dr. E. W. Saunders as its first president. Its membership is limited to fifteen, but invitations to outsiders are extended for each monthly meeting. The interest is great and the meetings enthusiastic.

The Philadelphia Pediatric Society was established December, 1896, and holds its meetings monthly. It has proved a success beyond all expectation, has a large membership and interesting and well attended meetings at which much work is done. Its proceedings are published regularly in several medical journals. I feel greatly honored in having been its first president and in having had the opportunity to review the work of the first year in an address published in the *Archives of Pediatrics* a short time ago. It is possible, and even likely, that there are other city societies of which I have been unable to learn. Certainly they are to be welcomed.

Public Teaching of Diseases of Children.—Finally let us consider the status of the public teaching of pediatrics in medical schools. An interesting and valuable contribution has been published on this subject by S. W. Kelley, which approaches the matter from another point of view, and therefore duplicates little, if at all, what I shall have to say.

Dr. Jacobi is my authority for the statement that Rosenstein, who wrote a text-book on diseases of children in 1752, and his predecessor, Roberg, introduced clinical instruction in diseases of children in Stockholm. This would appear to be the earliest instance of the official special teaching of the subject. As far as I can learn there was no other public teaching in Europe until about 1850, when Giraldès gave instruction in surgical and Bouchut in medical affections of children in Paris; while at about the same time Mauthner was teaching pediatrics in Vienna, and Hauner in Munich. About 1858 Ehlers began lecturing in Berlin. The branch now receives attention in nearly all of both the large and the small universities, and is represented in many of them not by a clinical chair but by a recognized full professorship. In this respect Europe is still decidedly ahead of us, although we are rapidly gaining.

In England, however, the teaching of pediatrics would seem for the most part to be far from satisfactory. According to a recent editorial appearing in *Pediatrics*, taking St. Thomas' and St. Bartholomew's as examples of what prevails in most of the London hospital schools, there are no special lectures on pediatrics given at all. In Manchester, under the teaching of Dr. Ashby, conditions appear somewhat more advanced. In Edinburgh a lectureship on this subject has been established only within very recent years.

How is it regarding the public teaching of pediatrics in the United States? Although Gunning Bedford, about 1850, taught diseases of children in a mixed women's and children's clinic in the University Medical College of New York, the first special chair in this department was established in the New York Medical College in 1860 and given to our distinguished fellow-physician, Dr. Jacobi. Since that time what a change! Yet the change came but slowly. Dr. Jacobi, writing in the Cyclopedia of the Diseases of Children in 1888—only ten years ago—says: "To my knowledge there is no school in the country which lays the least stress on that branch of instruction. . . . No examination being required by those to whom the student looks for direction and enlightenment, he neglects the study, to find out too late the mistake he has made in doing so."

Now, as I said, what a change! How the profession throughout the country is awakening to the demands of the times! No need to ask longer whether pediatrics is or should be a specialty. See only what the colleges are doing, for the proof that its position is being fully recognized. In order to illustrate this point I have examined and compared lists of regular medical colleges in the United States and, with the assistance of our secretary, Dr. Rosenthal, have applied to all of them for recent announcements and reports. From the great majority these have been received, but for the information regarding a few I have been obliged to depend upon the schools' advertised list of teachers. I find the names of 130 colleges, from which must be excluded 13 of which nothing whatever could be learned. (The post-graduate schools are not included in the analysis, although all of them have full chairs of diseases of children.) A study of the 117 remaining schools is most interesting. In 64 of them, i. e., 54.7 per cent., there is a special chair for pediatrics. In 43, i. e., 36.75 per cent., the chair is combined with some other department—not by any means always as the minor subject, and never buried in it without mention of the title. In 3 colleges there is only a lectureship. In only 7, i.e., 5.98 per cent., is there no announced teaching of diseases of children; and I have knowledge that in

some of these 7 special instruction in pediatrics is given. In all but 7, then, out of 117, the published announcements recognize the importance of pediatrics and advertise the teaching of it.

Further, of the 64 colleges in which the department has its own independent chair, in 49, i. e., 76.55 per cent., the title is that of "Professor of Pediatrics" or "Professor of Diseases of Children." In only 15, i. e., 23.43 per cent., the title is a minor one, usually "Clinical Professor," sometimes "Associate Professor," and in one instance "Professor of Clinical Pediatrics."

No positive conclusions can be drawn from these facts, but from them, with a study of the catalogues, certain very suggestive inferences are justifiable. It was clear in most cases where the title of "Professor" is given that the teacher is a full member of the faculty, and his department admitted as equal to any other. This shows well the recognition which pediatrics has gained throughout the country. Even in cases where this inference could not be drawn, another was evident, viz., that the Professor is not limited to clinical work alone, but has, if he wishes it, the option of giving a systematic course in his department. In fact, this is distinctly stated in many cases. In the smaller number of colleges where such a title as "Clinical Professor" is employed I know that in some instances at least the teacher has this option. I dwell upon this point because my belief is that pediatrics should be taught both clinically and didactically; and I think the figures I give prove that this is now the commonly accepted opinion throughout the country.

As to the numbers of hours given to pediatrics I can make no positive generalizations. As far as it could be determined the number of hours varies greatly in different schools, and is often much below what it should be.

Some more accurate details may be of interest. About two years ago, with a special purpose in view, I addressed a series of questions to the holders of chairs of diseases of children in a number of the leading medical schools of the United States, selecting chiefly those in which an independent chair existed, and a number of others in which the department was combined with some other, but where active teaching in pediatrics was going on. The questions were personal to a certain extent, and I feel authorized therefore in giving only the results in general, without mentioning the names of the institutions.

I have accurate statistics of 28 colleges, not gleaned from the catalogues, but from the direct answers of the teachers themselves. In 17 of the 28 colleges the department of pedriatrics is represented upon the governing medical body of the school. This does not represent the actual percentage which holds good for all the schools of the country, for it happens that the 28 schools selected had an unusually large proportion of *clinical* chairs. In 14 out of 24 colleges suitable for comparison the professor of pediatrics receives a salary. This large proportion does not fairly represent the true importance which is attached to the chair by most schools, since in certainly 5, and probably in nearly all of the remaining 10, circumstances compelled all or nearly all of the other chairs to be unremunerated also. Therefore, in almost every one of the 28 colleges studied, the teacher in the department of the diseases of children is considered of sufficient importance to receive remuneration for his work. In all but 5 of the 28 colleges there are a number of other officers beside the professor who are actively engaged in teaching diseases of children. In 23 of the colleges didactic as well as clinical instruction is given; in a large number of the 28 ward class instruction is also used, while in a considerable number recitations are likewise held. In at least 19 of the 28 the chair does not depend on dispensary patients alone for clinical material, but has ward patients also.

All these facts are proof—if proof were needed—of the high estimation the medical schools have of the importance of pediatric teaching. Finally, in all but three of the twenty-eight colleges, i.e., in 89 per cent. there is a required final examination by the professor of pediatrics. In most of them this ranks with all other examinations. Here is the evidence that most medical schools are alive to the fact that pediatrics is important enough to *require* their students to study it. How different from the condition of ten years ago, as Dr. Jacobi shows in the words I have already quoted.

We have hastily reviewed the rise of pediatrics as a special branch of medical science, and the astonishingly rapid progress which it has made in very recent years. What now are its needs? The little I have to say here can be said briefly.

First, there is the need that the recognition of the importance of special teaching in diseases of children to medical students shall become universal. Almost all of the newer and more progressive schools do appreciate this. I am sorry to say that in some of our oldest and best known institutions, where one should expect the most advancement, the branch receives even yet by no means the recognition which it deserves, and which the schools of Germany and France are giving it. Conservatism is good in its place, but when pushed too far it becomes merely "old-fogyism." It may be safely prophesied that not many years will pass before the demands of the times, the demands of undergraduates—for these fully realize the value of pediatrics to them—will force even our most conservative colleges to discard for the new garments of modern progress that shabby, threadbare mantle of antiquity and precedent which they have so long and so closely wrapped about them.

Then, in nearly all of our schools there is the need that much more time be allotted to the study of children's diseases, and that more clinical material be provided for practical personal study by the students. In no other way can the students be given that actual knowledge of children's ailments which they are sure to need very early in their career as physicians. Finally, there is a need not to be overlooked—that no attempt shall be made actually to dissociate pediatrics from the main branches. This is equally true of all specialties, both in their teaching and their practice. The effort so to separate can do only harm and can not possibly succeed. Special teaching is absolutely required. It is impossible now-a-days for the professor of medicine or the professor of surgery to cover the ground in the time at his disposal. But for all specialties there must be the foundation of the main branches of medical science, and all special branches must be studied in their bearing upon these. In one sense pediatrics is wider than general medicine. It is different from all other special branches in one important particular. These latter instance the application of general medical knowledge to special organs of the body. Pediatrics, however, is special knowledge of disease as it expresses itself in the general system of the child. The general physi-

n need know little of children's diseases. The diatrist must not only know adult medicine but ecial child-medicine as well.

What must be our aim, then, as physicians inter-ed in this great branch of medical science? To so dy it, practice it, write of it, teach it, work for it, at we may fit ourselves and others to aid in the best y the most helpless and defenceless, the most tractive, the most appealing of our patients—the ildren.

In closing I must express my indebtedness for valu-le information obtained from the article by Rauch-ss on "Die Kinderheilanstalten," and that by Hen-g on "Die Geschichte der Kinderkrankheiten," th in Gerhart's *Handbuch der Kinderkrankheiten*, ol. i; that by Jacobi in the Introduction to the yclopedia of the Diseases of Children; that by dams, on the "Evolution of Pediatric Literature in e United States," in the *Archives of Pediatrics*, ne, 1897, and that by Kelley on "Pediatrics, Past, esent and Future," in the *Cleveland Medical azette*, September, 1896. Meissner's "Grundlage der iteratur der Pädiatrik"; an editorial in *Pediatrics*, an. 15, 1897; the Index Catalogue of the Library of e Surgeon-General's Office; Polk's Medical and urgical Register of the United States; the Medical irectory for England, and the Bibliographical Sup-lement of the Cyclopedia of Practical Medicine, by orbes and his associates, have all been of service. I m also much indebted for information furnished in ersonal letters from Dr. Guinon of Paris, editor of e *Revue Mensuelle des Maladies de l'Enfance;* r. Frühwald of Vienna, editor of the *Archives für Kinderheilkunde*. Dr. Baginski and Dr. Heubner f Berlin, Dr. Saunders of St. Louis, Dr. Lambert of ndianapolis, Dr. Rotch of Boston, Dr. Adams of Washington, Dr. Booker of Baltimore and Drs. Brown, Adriance and Carr of New York. Last, and specially, I am indebted to Dr. Jacobi of New York or many useful suggestions and much valuable nformation given, both in personal letters and in onversation.

THE LIMITATIONS OF MEDICINE.

Address Delivered at the Opening Exercises of Rush Medical College, September 27, 1898.

BY FRANK BILLINGS, M.D.

CHICAGO, ILL.

Medicine has for its object the relief of suffering nd the prolongation of life. There exist many lim-tations to the successful accomplishment of this ob-ect. The limitations of medicine are less numerous oday than in the past, and many of the obstacles to uccess in the prevention of disease and the healing f the sick will be removed in the future.

Medicine as a whole is not a science. Of some branches which enter into it our knowledge is exact; f others our information is theoretic, while every day adds to our knowledge and removes many obsta-les from the path of progress. The chemic labora-tory and the microscope have done much and will do more to make medicine a science. Progress in knowl-edge of chemistry and biology has been wonderful in the last twenty years, and this knowledge has removed many of the limitations of medicine. Strange as it may seem, the limitations of medicine which man is striving to remove, are due to man himself.

Man is the highest type of animal, endowed with a mind capable of reason, and gifted with a means of communication with his fellows; and yet man is the very source of his own undoing. The original man was doubtless perfect in mind and body; the master of all created things. Like all organic life, his span was made up of periods of birth, growth, maturity and decay. He was doubtless able to combat his foes and sink at last, in the fulness of his years, into euthanasiac sleep. The history of man, since the fall, is like the repeated pages of a book. Vicious habits mark his footsteps, whether civilized or barbarian; his habits of work and of rest, his food and drink, are not rational; he contaminates the air he breathes, the water he drinks and the food he eats. The water-sources and the earth, contaminated by man, become soil for the growth of the germs which infest and sicken him. His contaminated body begets a prototype, imperfect in mind and body. From the cradle to the grave a degenerate being, he fights against a mighty host, bred of his own shortcomings. Most of the infectious and contagious diseases may be classed as preventable; most of them are filth diseases, and they can not exist in the presence of perfect cleanliness.

A proper observation of hygienic rules relating to cleanliness of the person, of food, and of the water-supply, renders a population free of typhoid, cholera and other filth diseases. The example of the city of Vienna is sufficient to prove this. Previous to 1878, Vienna received its water-supply from the Danube river, which was contaminated by the sewage of the city. While using this water-supply, Vienna suffered from the constant presence of typhoid fever, and cholera was a frequent visitor. The World's exposition of 1873, at Vienna, was practically broken up because of a visitation of cholera and typhoid fever. In 1878 Vienna's new aqueduct was completed which brought pure water from the Semmering pass in the Carpathian Alps, a distance of seventy odd miles. From that time until the present, typhoid fever and cholera do not exist in Vienna, except as importations. There has been but one exception to this—which emphasizes the lesson of the value of pure water. I think it was in the year 1888 a break occurred in the Semmering aqueduct. The old water-supply was temporarily used, until the aqueduct was repaired. Typhoid fever again promptly appeared in the city, and continued until the pure water was again supplied.

Ideal sanitation would free the world of all diseases due to filth. What prevents ideal sanitation? Many things: ignorance of the people, both rich and poor, educated and unread; an ignorance of what is real cleanliness of mind and body and of the drink and food they take. Health officers and family physicians teach in vain the value of cleanliness, the best methods of removing the contaminations of food and water, and the necessity of precautions in the presence of contagious diseases. Ignorance, prejudice and a love of dirt are often difficult to overcome. Sanitation has done much to overcome the evils of self-contamination of water, milk and other food. Sanitarians have not only the ignorance and prejudice of the people to overcome, but also the avarice of commerce. Air pollution by smoke and odors; sewage increase and consequent increased pollution from the by-products of packing-houses, manufactories, etc., food adulteration to meet competition in trade, are conditions not easily overcome, because of the political influence the dollar commands, especially in our

municipal governments. It is the influence of politics which prevents the enforcement of the laws which exist for our protection. Politics and greed are synonymous terms. Sanitation and the prevention of disease and of death are disregarded if the enforcement of the law should interefere with the official life, pleasures and emoluments of the politician.

Politics in this country not only limits the enforcement of sanitary measures, but politics has had a blighting influence upon the advancement of medical education. We have no law governing the conduct of medical schools or fixing a uniform standard of requirements for graduation, before beginning the practice of medicine. Each State has its own medical law, and no two have like laws. But few place the standard of requirements high, and most of them have very minor requirements. In many States a charter for a medical school may be obtained for a small fee by any body of men who may please to originate a diploma factory. In this city alone are twenty or more medical schools. In this, as well as in some other municipal matters, Chicago leads the world. Other States and other cities boast of medical colleges galore. The most of these are private institutions owned partly or wholly by the teaching faculty. The expenses of the institution are paid from the fees derived from the students. The result in most cases is what one would expect. Students unfit to study medicine are admitted to the schools, while inadequate facilities for teaching prevent the proper and thorough education of the student. He goes forth with a diploma, which is equivalent to a license to practice in most States, for in but a few States is an examination to obtain a license necessary. Thus, the profession is crowded with physicians who are not prepared for the work they should do; the people suffer in consequence and scientific advancement is retarded thereby. Again, once a license is obtained, the State authorities are in most instances powerless to annul it, even if the holder thereof viciously prostitute his practice. In practice the law says all physicians are equal who hold a license to practice. The one may strive by all honest means to conscientiously help suffering humanity; the other may be a fiend on earth. Murder and lesser sins may thus be lawfully committed. The criminal may write the death certificate which affords safe burial of the victim. All medical practitioners are, however, injured and their influence for good is lessened by every evil-doer in medicine. Comment is unnecessary. The influence of politics has more to do than any other one factor in the retardation of medical progress and in limiting the possibilities of medicine.

Science is gradually and surely overcoming this evil. In some States excellent laws have been established, requiring schools to admit only students who are properly prepared to study medicine. The curriculum must contain certain branches and the course of study must extend over four years. State examinations are also required for a license to practice, to which the applicant for examination is eligible only upon the evidence that he has taken a college medical course extending over a period of four years. All of the States will eventually be forced into the plan, not by law but by the people, who are slowly awakening to a better knowledge of things medical. Our State, county and city medical institutions are usually misgoverned by politics, and the patient and scientific medicine suffer in consequence. The use of anatomic material is so restricted by law in some States that medical education suffers. It is only since 18—twelve years—that anatomic study has been untrammeled in Illinois. It will surprise many of you to know that previous to 1874 the law of this State made no provision for the use of anatomic material and at the same time made it a criminal offense to dissect or experiment surgically upon cadavers illegally obtained.

Vivisection has been a means of research which has so enriched our knowledge of physiology, has so perfected operations in surgery and so broadened our knowledge of pathology that thousands of human lives have been saved. Nevertheless, antivivisectionists have secured the adoption of laws in some countries and in some States so restricted vivisection as to retard medical progress. The charge of cruelty to animals without material addition to our knowledge is not borne out by fact. No scientist worthy of the name is cruel. No scientist desires or asks for unrestricted and general vivisection. By authorized teachers and honest searchers after truth, no cruelty will be practiced. The knowledge gained will, in the vast future, be the means of saving the lives and relieving the sufferings of many times more human beings than the number of animals sacrificed. In the meantime the antivivisectionists will perform a real service and save much brute suffering if they will turn their attention and influence to the relief of the overworked, underfed beasts of burden which drag overloaded drays, tramcars, and carrettes about the streets, and the time they may spend in protection of our birds from the plume hunter will not be lost.

Our knowledge of pathology has been enormously increased in the last few years. The cause of disease is very much better understood. There is now no longer a reason for the existence of the many theories of medicine of former years. The scientific physician whose knowledge of anatomy, chemistry, general biology, pathology and clinical medicine is ripe, will therefore recognize the disease and its cause, if it is known. In the attempt to relieve the individual he will use every endeavor to remove the cause or to neutralize it. He will use anything and everything which his knowledge and judgment dictate for the relief of the patient. Pathies do not exist for him. A liberal and exact education in the foundation studies of medicine, teaches him to take a broad-minded view of all things pertaining to medicine. The adoption of a theory with a pathy attached necessarily includes belief in and practice of a narrow dogma. Recovery of the acutely ill, is frequent enough under all sorts of management to afford argument of a specific cure-all. The man who practices a pathy burrows in a ditch; his horizon of observation becomes narrower as he digs. The existence of pathies is an obstruction to medical progress. To-day there is no reason for the existence of the word "pathy." The properly educated man can no longer ignore the existence of disease and treat the symptoms only. He cannot affirm that only vegetable medicines should be used and that all metallic medicines are poisonous. He can not affirm that water alone should be used and that it may always be applied without danger. He knows that manipulations alone can not remove a disease. He knows that electricity is not understood therapeutically, and ascribes much of its value to its moral effect. He recognizes the fact that certain conditions of the mind

d body are relieved by hypnosis and by hypnotic ggestion, whether it be induced by the incantations the Indian medicine man, the Buddhist and the lack man of Africa; by the laying-on of hands of e mesmerist and faith healer, or by the prayer of e Christian scientist. He may be willing to use any all of these methods, in the proper and few instances in which they may be indicated. I will not y that the average physician who possesses all the ualifications of a scientific man will try to induce a re by the laying-on of hands or by prayer. He ould probably think that equally good or better ffects would be produced by a good dose of calomel.

In the United States but little scientific medical ork is done under National or State expense and ontrol. The medical department of the regular rmy encourages the medical officers to make scienific investigations, and furnishes the necessary appaatus for such research. A few medical officers of the rmy have distinguished themselves by excellent cientific medical work.

The navy has not recognized its medical officers by roper rank, nor has it encouraged or even given pportunity for scientific medical investigation. The arine-hospital service is composed of excellent medcal men. Upon this department has devolved most of he National sanitary work of the last few years. Its owers and possibilities are, however, limited.

A few States have universities with medical departments, and in some of them excellent biologic and hemic work is done at the expense of the State. Most of the States have boards of health, some of hem composed of excellent medical men, clothed with sufficient power to be of benefit to the people. The boards of health of many other States are usually composed of medical men selected for political reasons. With every change of the political party in power, the members of the board, whether good or bad, are also changed. The boards of health of many of the States have done excellent sanitary work. Many have done much also to rid the medical profession of unqualified men, and in a measure, to elevate the standard of medical education, by recognizing the diplomas of only those medical schools that fulfilled the requirements of the boards in reference to the medical curriculum and time of study. The full usefulness, however, of the State boards of health, of the teachers in the State universities, and of the medical officers of the army, the navy, and of the marine-hospital service is prevented by political and commercial interests, or by environment inimical to scientific work. The greater part of the real scientific work in medicine in this country is done by individuals working privately at their own expense, or by teachers in institutions supported by the contributions of private citizens. Most of the good scientific medical workers are poor, and are obliged to earn a living by professional practice, a time-consuming impediment to proper scientific investigation. A mind full of anxiety, burdened with the responsibility of a life threatened by disease, is not as clear or as capable of unraveling the problems of medical science as that of the man whose whole time may be given to a special line of research.

In many foreign countries the governments recognize the scientific workers by paying them living salaries and by providing apparatus and opportunity for special lines of investigation. In this country the government maintains an agricultural department for the protection of the products of the farm, and an interstate commerce commission for the purpose of regulating and equalizing the interchange of the commodities of the States. This is done for commercial reasons. There is a commissioner of pensions—the agent of the government in the financial interests of the soldier. There is reason and justice in the maintenance of these departments. But there is just as much, if not more, reason, for the existence of a National Commission of Health—a commission with power to regulate the sanitary problems of the country and to adjust matters medical between the States as fully and definitely as the interstate commerce commission performs its duties.

In law a human life is worth $5000 to the State. Why should the National government and the State not establish laboratories, or support those already established by private institutions, for the purpose of discovering the means of saving human life? Commercially a human life is worth more than an ox or a horse, and yet the government is more watchful of the health of animals which go to the slaughter-house, or of the possible contamination of the farms by Canadian thistles, or by an invasion of grasshoppers, than of its citizens. The probable explanation is that corn, wheat and animals have an immediate visible commercial value, while a human life is the principal which earns only a small visible annual interest.

The limitations of medicine in the management of acute infections and contagious diseases has always been great. The success in the prevention of these diseases has been greater than in the healing of those already sick. The discovery of bacteria and the relation they bear to the infectious and contagious diseases has afforded a still better means of prophylaxis and made a more rational treatment possible. We have looked upon these diseases as self-limited in duration—self-limited to accord with the life cycle of the invading germ. The materia medica does not furnish us a drug which will cut short the disease. The drug strong enough to kill the invading germ is equally deadly to the host. We modify the course of the disease only. We attempt to carry the patient through the illness by hygienic measures, simple food, bathing to modify fever, and by measures to support the patient until the invading army shall disappear. Specific medication is of no value except in the malarial diseases and in syphilis. This limitation of medicine is pronounced. But the microscope and chemistry have discovered a principle which has already worked wonders in the cure of some of the infectious diseases—a principle which appears to be applicable to many if not all of the diseases due to bacteria. It seems that bacteria not only secrete a poison which is the agent producing the symptoms of the patient, but that, like man, the germs are the source of their own undoing, for they also secrete or excrete or manufacture a substance which deals death to themselves and may also neutralize the disease-producing poison in the patient. The chemist has been able to isolate the toxin and the antitoxin in a few diseases. Furthermore, it has been found that an individual treated with the antitoxin, not only more certainly recovers from a particular infection, but that a well individual treated with the antitoxin may be protected for a longer or shorter time from bacterial invasion, or at least from the disease-producing toxin. The accidental discovery by Jenner of the relation of cowpox to smallpox, and the resulting protection against

smallpox by bovine vaccination; the further discoveries of Pasteur, of the possibilities of immunization of animals by inoculation with the attenuated virus of a disease, and the final brilliant discovery of, and the possibility of the utilization of, the respective antitoxins in the cure of, and in the prevention of, some of the infectious diseases, establishes a principle which is so important as to eclipse almost any other event in medical history. The brilliant results obtained in that dreaded disease, diphtheria, alone, from the application of this principle, is enough to fix it as a truth and justify us in the hope that it may be successfully applied in the near future to many other infectious diseases. In that branch of medicine classed as surgery, bacteriology made possible a knowledge of true cleanliness which has enabled the surgeon to invade with impunity, every part of the human body. Hence the horizon of surgery is wide and its limitations now are few.

I have said that many of the present limitations of medicine will disappear in the future. By what means may we hope to remove the obstructions to medical success? We can help to modify, and perhaps in the future hope to see the disappearance of, the abuses of medicine due to politics. We should exert ourselves to influence the establishment of a non-political, National Commission of Health, with power to regulate the study and the practice of medicine by a uniform law in all the States; with power to command the civil officers of the States in the enforcement of sanitation in relation to the contamination of food and drink, in the dissemination of contagious disease, etc. We should try to influence the government, both National and State, to recognize the scientific workers in medicine and the allied sciences by offering inducements in the way of honors and money reward for the discovery of facts which are of use in prolonging life and palliating suffering. A student who enters the field of medicine should be so thoroughly prepared, should have the proper facilities for study, and should give such time to the study of the fundamental branches and of the principles of medicine that he may command every possible means of prolonging life and relieving suffering. So prepared, he will embrace no dogma and recognize no pathy. A physician, he will command the respect and love of the people, who will listen to and heed his advice and instruction. Every physician so educated will exert a wide influence in helping to remove the conditions of the people which tend to limit the usefulness of medicine.

In closing, let me say a few words of the possibilities and the needs of this school. If we add to the great influence which this school possesses because of the reputation gained by fifty years of progressive improvement in medical work, the advantage which must result from the affiliation with the great University of Chicago, we may hope for the ideal in medical education. The broad-minded policy of the University will be admirably executed by the splendid mind of the man who conceived the plan. Over the whole Northwest are schools, academies and colleges that have shaped their courses of study to correspond with the curriculum of the University. Students will be piloted through the preparatory school, the academy, the college and the University, their minds moulded, trained and disciplined with a forethought of the final life-work of the individual. So prepared, a student will begin the study of medicine. The foundation studies—chemistry, physiology, general biology, anatomy, pathology, pharmacology and materia medica—will either be completed or the principles thereof will be mastered in the first two years of medical study. Then must come the application of the knowledge possessed of the foundation branches to the study of disease in the living and the dead. In hospitals and dispensaries, in chemic and pathologic laboratories, must the student labor to recognize disease by the phenomena termed symptoms, physical signs, and by the changes which occur in the tissues, the blood, and the various secretions and excretions of the body in disease.

To accomplish ideal work in the last two or three years of a medical college course, it is necessary to have at hand a plentiful amount of material with which to work. Not only must the amount of material be sufficient, but it must be situated, in reference to facility of use, that all that is possible may be obtained from it. It is, therefore, necessary that proper buildings be had for both dispensary and hospital patients. The dispensary must be a clinical building, so arranged with rooms for clinical examination and for laboratory research, that all students may come in direct contact with the patient, and be enabled to make the examinations I have named above. A free-bed hospital should also be accessible, to furnish examples of the acute and severer forms of disease, with laboratories and apparatus for thorough examination of everything of which analysis is necessary, in the recognition of disease and in the study of the action of remedies used in the attempt to heal. Facilities should be afforded, in an annex or building closely adjacent to the hospital, for the study of morbid anatomy. Here, under the proper direction of a pathologist, the student should be enabled to carry on the more practical study of pathology, the principles of which he learned in his first two years of medical college work. Here he should be able to trace the relation of the morbid changes to the symptoms, to the physical signs and to the alteration of the secretions and excretions of the body, which he was able to observe in the wards of the hospital. By this means he will be able, not only to understand the principles of the various subjects of medicine, when separately considered, but also their intimate relationship to each other. It is not too much to hope that this institution shall in the near future have a clinical building with all of the modern conveniences which architecture can furnish, including laboratories, with every means which shall afford the surest recognition of disease, and thus give greater comfort and surer means of relief to the sick. It is absolutely necessary that this school shall have a free private hospital governed entirely by its faculty, with all of the laboratories for the recognition of disease, and the examination of the morbid changes which occur in the human body. With a clinical building, and with a hospital such as I have attempted to describe so briefly, this school, possessing as it does, the present means of obtaining students thoroughly fitted for the study of medicine, and with almost perfect facilities for the study of the fundamental branches of medicine, will soon attain an ideal medical course. With such an institution in the West, medical education will be so stimulated that other institutions, even though they have lesser facilities, will attempt to keep in line.

The medical man of the future will thus be, not

nly better prepared to meet, but will also be better quipped to further lessen the limitations of medi-ine.

100 State Street.

ORIGINAL ARTICLES.

THE ESTIMATION OF URIC ACID IN URINE.

resented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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While connected with the Stetson Laboratory of Hygiene, my attention was called to the fact that it was desirable to make a study of the conditions under which there was an increased, and other cases in which there was a decreased, elimination of uric acid. Intimately associated with this would be a physiologic study of tissues and probably also cell metabolism; in other words, determining the place occupied by uric acid in the chemistry of the animal body. The purely physiologic study being out of my line, I determined, on the recommendation of two of my former colleagues, Dr. Judson Daland and Dr. Frank Massey, to take up the purely chemic side of the question.

The first step in the investigation would be to determine on a method for the estimation of uric acid which would be comparatively simple in its application, and which would in the different operations be accompanied with the fewest sources of error. In looking over the literature on the subject we found many contradictory statements as to the accuracy of one and the same method. It is possible that a method under certain conditions will give accurate or fairly accurate results, while in other cases the same process will give results which vary considerably from the truth. It is not absolutely necessary for our purpose to study the cause of variation, but an examination of the methods under various conditions would be sufficient, and from the data thus obtained determine on a method which would be used in the principal investigation.

It would seem fairly simple to determine on an accurate method by taking the simplest case possible and trying the different processes on this one. I refer here to making a standard solution of uric acid of known purity and applying the different tests. But from the very start we have to contend with the ready decomposition of uric acid while in solution. It is a well-known fact that uric acid in an alkaline liquid is more or less rapidly decomposed into a number of distinct compounds which form at the end carbon dioxid, ammonia and oxalic acid. This decomposition is due to oxidation and hydration on the addition of oxygen and hydrogen in the form of water, H_2O, to the molecule of uric acid, $C_5H_4N_4O_3$. A similar change takes place also in urine when exposed to the air without sterilization or preservation in some manner or other. It is necessary, therefore, that a urine should be examined for uric acid as soon as possible after voidance.

The results obtained in estimating the amount of uric acid in a simple solution of uric acid can not be taken as applying with like force to the estimation in urine, as I will show later on. The difference is due very likely in the organic and inorganic compounds found in the urine, which among other properties show a peculiar solvent action toward the urates, this peculiar behavior residing principally in the phosphates and the urea.

In estimating uric acid in a sample of urine it is decidedly preferable to use that passed in twenty-four hours, as this alone will give a criterion as to quantity and assist very materially in computing the results obtained. It is possible that when the urine usually passed is rather concentrated under the influence of alcoholic beverages, the quantity of water excreted is materially increased, the urine becomes diluted, and if a sample of this latter urine is used the proportion of uric acid is diminished.

For the work in hand it was necessary to apply the tests to the same urine throughout, but it being impossible to obtain the necessary quantity from one person at one time, it was thought best to collect a lot of urine from different persons and then make the estimations on the collective urine. I therefore sent a large vessel to one of the departments of the J. B. Stetson hat factory, and had it filled without paying any attention as to whether persons using the same were in health or under treatment for any disease. The quantity obtained amounted to about four gallons, and was furnished by eighty persons.

The urine showed the specific gravity of 1.021, and contained neither sugar nor albumin. Before taking the quantity for each estimation the urine was thoroughly mixed each time. In reporting on the different methods I will begin with the one first recommended, and which to all appearances would be the simplest, taking into consideration the slight solubility of the uric acid. From this I will continue through the other methods applied, becoming gradually more difficult in application, and ending with the process which I have adopted as being the one which unites accuracy and ready applicability.

The first method we would have to consider is that of Heintz, in which the uric acid is set free by means of hydrochloric or other acid, and after standing for at least forty-eight hours, collecting the precipitated uric acid and weighing. When applying the rules as they pertain to ordinary solutions it would be expected that only a small quantity of hydrochloric acid would be necessary to complete the precipitation. It has, however, been shown that a solution of urea has a solvent action on uric acid, probably forming therewith a chemic compound which, however, is not soluble in a highly acid medium. It is, therefore, usual to add 20 c.c. of strong hydrochloric acid to 100 c.c. urine, which is a considerable excess, but even with this excess a complete precipitation does not take place, uric acid being soluble in water in the proportion of 1 to 16000. According to this the correction would only be slight, and it is given as 0.0038 gm. for each 100 c.c. of liquid in use. Salkowski found that after treating 200 c.c. of urine as above, he could still isolate from the filtrate thus obtained from 0.044 to 0.07 gm. of uric acid by supersaturating with ammonia and precipitating with ammoniac silver nitrate solution. I applied this test with hydrochloric acid and also with acetic acid, and found

With HCl, 1, .0353; 2, .0349; 3, .0369—mean 0.0357 per cent.
With $C_2H_4O_2$, 1, .0338; 2, .0375; 3, .0407—mean 0.0373 per cent.

What surprised me somewhat was that I obtained with the acetic acid macroscopic crystals of uric acid which at first were perfectly transparent and of a reddish color, but on drying became opaque.

The second method is that of Guerin and Thorion, who propose to precipitate the uric acid as the magnesium ammonium urate—to which they ascribe the formula $(C_5H_2N_4O_3H)_{10}(NH_4)_8\,Mg+45H_2O$—by means of the magnesia mixture as used in phosphoric acid estimations. It would be impossible to simply filter off the precipitate and regard it as this compound, on account of the magnesium ammonium phosphate also formed. They therefore incinerate the precipitate, forming magnesium pyrophosphate and magnesium oxid, and estimate the amount of the latter produced. The magnesium oxid is formed from the uric acid compound, as the only incombustible portion present is the magnesium.

In applying this test 100 c.c. urine were used, and after incinerating the precipitate, the amount of magnesium was estimated volumetrically. The residue was taken up with 25 c.c. decinormal sulphuric acid, and when titrating with decinormal sodium hydrate it was found that it required 22 c.c. to bring the liquid to neutrality, leaving 3 c.c. saturated by the magnesium

3 c.c., n/10 H_2SO_4=0.014673 gm. H_2SO_4=0.003645 gm. Mg.

According to the formula we have 10 molecules of uric acid (167.8) to one atom of magnesium (24.3), and consequently we have the proportion

24.3 : .003 :: 645 : x (.24684 gm. uric acid).

In a second determination the result was even more unsatisfactory. The quantity of decinormal sulphuric acid saturated by the magnesium amounted to 4.2 c.c., consequently giving even a higher result.

Third. Uric acic forms an insoluble barium salt, and it is on this property that Geelmuyam bases his method. He adds sodium hydrate to the urine in such a quantity that litmus paper remains blue when dry and then precipitates with barium chlorid. Besides the barium urate he also has formed here the barium sulphate, and to separate the two he boils the washed precipitate with dilute hydrochlorid acid, filters off the barium sulphate while hot, and evaporates the filtrate to a smaller bulk. On standing, the uric acid separates, is collected on a filter, washed, dried and weighed. The results obtained with this method are:

1, 0.0425; 2, 0.0439; 3, 0.0393—mean 0.0419 per cent.

With this urine the results were fairly satisfactory, but on applying it in another series the amount of crystals obtained was so small that they were not weighed.

Fourth. On boiling urine which does not contain any sugar with Fehling's test, we find a decolorization and a precipitation of flocculent masses—cuprous urate—part of the uric acid reducing the copper to the cuprous oxid, which then combines with the uric acid present, forming the cuprous urate. Arthaud and Butte add the copper in the form of cuprous hyposulphite to the urine and precipitate the cuprous waste direct without losing any of the uric acid through oxidation. They have arranged it as a volumetric method, using the following solutions:

1. Copper sulphate, 14.84 gm.; tartaric acid, trace (I use, following Ducong, five drops of sulphuric acid), distilled water sufficient to make 1000 c.c.

2. Sodium hyposulphite, 80 gm.; rochelle salt, 160 gm.; carbolic acid, 5 drops; distilled water sufficient to make 1000 c.c.

For estimating, 2 parts of 1 are mixed with 8 parts of 2, giving a solution of which 10 c.c. precipitate 2 cgm. uric acid.

The manner of applying this test is as follows: 100 c.c. urine are made alkaline with sodium carbonate, warmed to precipitate the phosphates and then filtered. A portion equivalent to 50 c.c. urine is treated with the above solution, drop by drop, until no more precipitation occurs. As it is very difficult to notice when sufficient of the cuprous solution has been added, the authors propose a few methods of determining the end reaction. The first and simplest, but not very satisfactory, method is to filter off a small quantity and add a few drops to it from the burette when, if no precipitation occurs, the titration is complete. The second method depends on oxidizing any possible excess of the copper to the cupric state and noticing the color produced with ammonia; they propose to take some of the above filtrate, add ammonia to it and shake in a test tube, permitting the oxidation to be done by the oxygen of the enclosed air. The third and preferable indicator is a 10 per cent. solution of sodium or potassium xanthogenate. By adding a drop of the filtrate to this solution an excess of copper shows itself by the production of a yellow color.

The first series in which this method was applied gave the following results, determining the end reaction by the precipitation method:

1. Required 20 c.c. for 50 c.c., equivalent to 0.04 gm. in 50; .080 gm. in 100 c.c.
2. Required 21 c.c. for 50 c.c., equivalent to 0.042 gm. in 50; .082 gm. in 100 c.c.
3. Required 16.5 c.c. for 50 c.c., equivalent to 0.033 gm. in 50; .066 gm. in 100 c.c.

In this last the ammonia method was tried, but did not prove to be satisfactory. Having some of the liquid remaining it was thought best to try the other indicator, potassium xanthogenate. With this, results were obtained more closely conforming to those obtained with other methods:

1. Required 12.84 c.c. for 50 c.c., equivalent to 0.02568 gm. in 50 c.c.; 0.05136 gm. in 100 c.c.
2. Required 13.2 c.c. for 50 c.c., equivalent to 0.0264 gm. in 50 c.c.; 0.0528 gm. in 100 c.c.
3. Required 10.8 c.c. for 50 c.c., equivalent to 0.0216 gm. in 50 c.c.; 0.0432 gm. in 100 c.c.

With sufficient practice this method may be made to do the work admirably, but the objection to this, like all processes requiring volumetric solutions, is the extreme care and exactness necessary in its use.

Fifth: Uric acid, like many organic compounds, will take up a certain amount of iodin, or in other words, reduce a certain quantity of iodin solution. I. Kreidl endeavors to make use of this property of uric acid in estimating its quantity. He draws attention to one peculiarity in this respect, viz.: the variation of the power of reduction according to the length of time the uric acid and the iodin solutions were in contact. If standing only a short time the amount of iodin consumed appears to be greater than it does at the end of three-quarters of an hour, at which time 2.3 atoms of iodin correspond to one molecule of uric acid. The application of this process is as follows: A moderate excess of normal potassium hydrate solution is added to the urine and followed by a considerable excess of thirtieth-normal iodin solution. After standing three-quarters of an hour the liquid is acidified with hydrochloric acid, some starch solution added, and the excess of iodin titrated with thirtieth-normal sodium thiosulphate (hyposulphite).

The results obtained by this method, paying strict attention as to time for standing, were as follows:

1. Consumed 39.5 c.c. iodin solution, corresponding to .0725 gm. in 100 c.c.
2. Consumed 39 c.c. iodin solution, corresponding to .0717 gm. in 100 c.c.

3. Consumed 38.5 c.c. iodin solution, corresponding to .0673 n. in 100 c.c.

Comparing the results thus obtained showed them be higher than by the other methods. The titration being made in the order here given showed that e time allowed is too short for the proportion as ated by Kreidl. It is possible also that exposure to ght has a reducing effect on the iodin solution, which isappeared. Iodin would consequently be estimated being caused by uric acid. On the whole, the ethod is unsatisfactory, principally on account of e instability of the solutions used for titrating.

Sixth. The inaccuracy of the Heintz method was rst shown by Salkowski by precipitating the balance f the uric acid with ammoniacal silver nitrate solution. On this he based this first method, estimating the ric acid with hydrochlorid acid and the silver solution. Ludwig simplified this by simply using the tter, and following him, Salkowski proposed a similar but more round-about process. The Ludwig, or s it is called, Salkowski-Ludwig, method is possibly he one most applied, and is here used. The solutions required are:

Ammoniacal silver solution.—26 gm. silver nitrate re dissolved in sufficient water, then ammonia water dded to dissolve the precipitate first formed, and astly the whole diluted to 1000 c.c. with water.

Magnesia mixture.—100 gm. magnesium chlorid rystals are dissolved in the necessary amount of ater, ammonia added in excess, and lastly sufficient mmonium chlorid to dissolve the precipitate. The olution is then diluted with water to make 1000 c.c.

Solution of an alkakine hydrogen sulphid.—15 gm. otassium hydrate or 10 gm. sodium hydrate are dissolved in sufficient water to make 1000 c.c. One-half f this solution is saturated with hydrogen sulphid nd the two again mixed.

The estimation is made in the following manner: For every 100 c.c. urine taken mix 10 c.c. each of the mmoniacal silver solution and the magnesia mixture nd sufficient ammonia to dissolve the precipitated ilver chlorid. This solution is then added to the rine and the whole thoroughly shaken. After standing about one hour the precipitate is collected on a lter, and washed two or three times with water to hich a few drops of ammonia have been added. During this time we have taken 10 c.c. of the third olution, mixed it with an equal volume of water, and eated to boiling. This hot solution is then poured n the filter, which has been placed in a beaker, 40 c.c. hot water added, and the whole then heated to oiling. The mixture is stirred repeatedly while cooling and filtered into a porcelain dish, the filter being ashed two or three times with water. After slightly cidifying with hydrochloric acid the filtrate is evaporated to 10 or 15 c.c. and allowed to cool. The uric cid as thus obtained usually contains some sulphur, which must be removed. After collecting the precipitate on a filter it is washed with water, alcohol, ether, carbon disulphid, and this then removed with ether, he filter dried and then weighed.

In the experiments I used 200 c.c. urine for each rial and obtained these results:

1. .0793 in 200 c.c.; .03965 in 100 c.c.
2. .0936 in 200 c.c.; .0468 in 100 c.c.
3. .0958 in 200 c.c.; .0479 in 100 c.c.

The cause of the first result of the series being so ow was that a portion of the liquid was lost.

Seventh. As shown above, working by Salkowski-Ludwig, the uric acid is estimated, but there is a possibility of the same reaction being made use of in another manner and arriving at a result which conforms fairly well with the above. Haykraft's method depends on a consideration like this, and is based on the supposition that the precipitate, as obtained by the above method, is of constant composition, containing one atom of silver for every molecule of uric acid. It must be possible to estimate the amount of uric acid present by determining the amount of silver in the precipitate. Haykraft proposes to do this as follows: The precipitate, as obtained by the Salkowski-Ludwig method, in the urine is allowed to settle and the clear liquid is run through a glass wool filter. Before pouring on the precipitate the surface of the filter is covered with lumps of sodium bicarbonate and on top of this the balance of the liquid, with the precipitate, is poured. The vessel in which the precipitation was carried on, and also the filter, are washed with ammoniacal water until the filtrate gives no precipitate either with silver nitrate and nitric acid, nor with hydrochloric acid. The residue on the filter is then dissolved in concentrated nitric acid and titrated with a solution of ammonium sulphocyanate, using a solution of ferric alum as an indicator. The solution of the sulphocyanate is of such a strength that 1 c.c. is equivalent to 1 c.c. 1/50 normal silver nitrate solution and represents then 3.36 mg. uric acid.

The results obtained by this method did not prove so satisfactory, being considerably higher than those obtained by the other.

1. .1213 gm. in 200 c.c.; .0606 gm. in 100 c.c.
2. .1391 gm. in 200 c.c.; .0695 gm. in 100 c.c.
3. .1509 gm. in 200 c.c.; .0754 gm. in 100 c.c.

An objection to this method which, however, is good in theory, is that there is a certain amount of reduction of some silver compound other than that of uric acid. This silver compound is not washed out with the ammoniacal water, but will go into solution with the nitric acid, and consequently increase the amount of silver reckoned as combined with the uric acid. Furthermore, a filter pump is a necessity in carrying out this process, otherwise a much larger quantity of a black compound will be formed.

Eighth. Some years ago Fokker made use of the slight solubility of the ammonium urate for estimating the amount of the uric acid. The want of accuracy induced Salkowski to alter the process to a certain extent. This altered process is as follows: 200 c.c. urine is made alkaline with 20 c.c. solution of sodium carbonate and after one hour 20 c.c. saturated solution of ammonium chlorid is added to it. This mixture is allowed to stand for forty-eight hours, then the precipitate collected on a filter and washed two or three times. The precipitate is then repeatedly treated while in the funnel with dilute hydrochloric acid until all the ammonium urate is decomposed. The filtrate is then set aside for six hours and the uric acid which has separated transferred to the remainder of the acid on the filter, which is then washed first with 30 c.c. of water and lastly with alcohol until the acid reaction has disappeared. The acid can now be weighed, but a correction of 0.03 gms. must be added to obtain a definite result.

The objection to this process is that the ammonium urate is not entirely insoluble in the urine, varying amounts remaining in solution. Another objection is the time it takes to finish one estimation, taking in

all nearly three days. Hopkins has found that the ammonium urate is insoluble in a urine saturated with ammonium chlorid and that the uric acid salt is precipitated much more quickly than by the above process, it being only necessary to allow the urine saturated with the ammonium chlorid to stand for two hours, when the filtration can be started. He has even reduced this time to fifteen minutes by simply adding some ammonia water to the mixture. Hopkins has shown that when using this method it was impossible to obtain any uric acid from the filtrate by the Salkowski-Ludwig method. In detail, the process is as follows: 100 c.c. urine are saturated with ammonium chlorid, the quantity usually necessary being 30 gm.; even should an excess of the latter be used the undissolved portions could easily be dissolved in a minimum amount of water just before pouring the last portion on the filter. Hopkins specifies to allow this solution to stand for two hours, but v. Jaksch places it aside for twenty-four hours. Using the shorter method, a quantity of ammonia water is added (I usually use about 5 c.c.), and the liquid filtered after fifteen minutes. The flask in which the precipitation was carried out and the precipitate and filter are washed several times with a saturated aqueous solution of ammonium chlorid, after which the filter is punched through and the precipitate transferred to a small beaker with hot water from a spritz bottle, then 1 to 2 c.c. of concentrated hydrochloric acid added and the liquid evaporated to about 20 or 15 c.c., when it is allowed to stand for about one hour or until it is cool. The precipitated uric acid is then collected on a tarred filter, washed with water, and after drying, is weighed, or the precipitate, after washing with water, is repeatedly treated with alcohol and thus transferred, by means of alcohol from a spritz-bottle to a tarred watch-glass which, after drying, is very hard. The latter method I prefer as being less troublesome, and the exceedingly small quantity of uric acid which adheres to the fibers of the filter may well be disregarded. Besides this gravimetric method Hopkins also estimates the uric acid as obtained at the end of the process by titration with a solution of potassium permanganate. I prefer to weigh the uric acid, as being the most accurate of the two methods. The results as obtained by this method without the addition of the ammonia were:

1, 0.0582 per cent: 2, 0.0606 per cent; 3, 0.0557 per cent.

To confirm my conclusions that the Hopkins method is the most desirable one I selected the processes to which no serious objection could be raised and applied them to another sample of urine, obtaining the following results:

Heintz	0.0181	0.0212
Arthaud and Butte	0.0500	0.0400
Kreidl	0.0664	0.0664
Salkowski-Ludwig	0.0385	0.0446
Haykraft	0.0776	0.0845
Hopkins without ammonia	0.0548	0.0579
Hopkins with ammonia	0.0480	0.0589

It was thought desirable to compare the results obtained with those from a uric acid solution of known purity; .5189 gm of Merck's uric acid was dissolved with 1 gm. lithium carbonate and the solution diluted to 1 litre, 100 c.c. contained consequently, 0.05189 gm.

The results obtained in this case are to a certain extent peculiar, as can be seen by comparing the results, due possibly to the methods being applied to a solution which was at variance with urine.

Heintz	0.0417
Geelmuyden	0.0282
Arthaud and Butte	0.0518
Kreidl	0.0469
Salkowski-Ludwig	0.0419
Haycraft	0.0436
Hopkins	0.0462
Hopkins with ammonia	0.0376

RESULTS OBTAINED BY THE DIFFERENT METHODS.

Number of series.	Name of author.	Number of experiments in series.	Quantity of urine used.	Results.	Mean.	Percentage.	Remarks.
			c.c.	gms.			
1a	Heintz	1	100	.0353			Hydrochloric acid.
		2	100	.0349	.0357	.0357	
		3	100	.0369			
1b	Heintz	1	100	.0338			
		2	100	.0375	.0373	.0373	Used acetic acid.
		3	100	.0407			
2	Guerin & Thorion	1	100	.2468		.2468	
3	Geelmuyden	1	100	.0425			
		2	100	.0439	.0419	.0419	
		3	100	.0393			
4	Arthaud and Butte	1	50	.04	.041	.082	No indicator used.
		2	50	.042			
		3	50	.033		.066	Ammonia as indicator.
		4	50	.02568	.02447	.04894	Potassium xanthogenate as indicator.
		5	50	.0264			
		6	50	.0214			
5	Kreidl	1	100	.0727			
		2	100	.0717	.0706	.0706	
		3	100	.0673			
6	Salkowski-Ludwig	1	200	.0793			
		2	200	.0936	.0896	.0448	
		3	200	.0953			
7	Haykraft	1	200	.1213			
		2	200	.1391	.1371	.0685	
		3	200	.1509			
8a	Hopkins	1	100	.0582	.0526	.0526	Without ammonia (water).
		2	100	.0468			
		3	100	.0528			
8b	Hopkins	1	100	.0587			
		2	100	.0606	.0583	.0583	With ammonia water.
		3	100	.0537			

The results in the Hopkins method are peculiar in one respect, and that is, that when it is applied to urine with the addition of ammonia the quantity found is always higher than when the chlorid alone is used, while in this case the result with the latter is the higher. The closest result in the examination of the solution of uric acid is that obtained with the method of Arthaud and Butte, varying only 0.0000 from the quantity placed in the solution. With practice the method will give also good results with urine, especially light-colored ones, so as to obtain a sharp end-reaction with the potassium xanthogenate.

Urine in which a uric acid determination is to be made should be examined as soon as possible after voidance or if that is impossible it should be protected in some manner or other to prevent change through the agency of micro-organisms. This can be done by the addition of a small quantity of chloroform or by sterilization. I purposely permitted a urine to stand unprotected for five days to see the variation in the amount of uric acid present. I found it reduced about 40 per cent. when examined in each case by the Hopkins method.

In an estimation like that of uric acid it is of great importance to have a method by means of which the acid may be thrown out of solution either by itself or in the form of a compound in such a form that it does not readily decompose, and still be completely precipitated. These conditions are not fulfilled by Heintz's method, as considerable uric acid remains in solution, as was shown by Salkowski, who isolated from the urine (200 c.c.) to which this method was applied from .044 to .07 gm. uric acid.

The method of Guerin and Thorion is not satisfac-

ory, as the results obtained are too high. Other objections are that it takes too long to finish the estimation and the temperature to which it must be heated, which precludes its use by the physician.

The objection to Kreidl's method is that the conditions do not seem to have been fully studied under which one molecule represent 2.3 atoms of iodin. The only directions are to let stand for three-fourths of an hour, as in a shorter time the reduction of the iodin solution is greater. Another and more serious objection is that there are other compounds present in the urine which have a reducing action on iodin solution.

From a theoretic standpoint the method of Geelmuyden should give fairly accurate results, as the barium urate which is precipitated along with the sulphate is almost insoluble in water. The objection is the extraction of the uric acid from the precipitate.

Arthaud and Butte's method gives tolerably close results when using the xanthogenate of potassium as an indicator, while by simple precipitation or with the use of ammonia as indicator the reaction obtained is not quite so sharp. The method of Haycraft and Herman has one serious objection and that is, if the washing with the diluted ammonia water be continued long enough the precipitate will disappear almost completely. If the urine with the silver stands too long a reduction of the silver takes place. This reduced silver is possibly a dark compound of silver, is insoluble in ammonia and when the silver is then estimated the results obtained will be far in excess of the amount of uric acid present.

The method of Salkowski-Ludwig is considered one of the most accurate of the methods employed; the objection, however, to it is the time necessary for the estimation, which can not be completed under twelve to fourteen hours, while there is also a possibility of loss due to the number of separate operations necessary.

The most satisfactory of the methods examined is that of Hopkins. It is easily applied and has few separate operations. The time consumed amounts to about two to two and one-half hours. It is accurate, as the ammoniunium urate is insoluble in a saturated solution of ammonium chlorid, in the urine as used. When using the ammonia water along with the ammonium chlorid alone, the result is usually somewhat higher than with the ammonium chlorid alone. I have used this process in many cases, and always with good results, the variations between separate estimations of the same urine being only slight. In one case the variation was only + or — .0005 per cent. and the highest variation being + or — .006. This last was due to a rewashing of the dried uric acid, as it contained some ammonium chlorid, and in transferring to the filter there was more or less loss.

THE PHARMACOLOGIC ASSAY OF THE HEART TONICS.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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It is unnecessary to call attention to the great therapeutic importance of the heart tonics since digitalis, strophanthus and others of the group are now universally employed by physicians in their daily practice. It is my purpose to point out some of the dangers attending the administration of these drugs, and to offer some suggestions in regard to the selection of the crude drug and the processes of manufacture, in order that the danger may be as far as possible circumscribed.

We are not generally accustomed to think of the heart tonics as being the most poisonous remedies employed in therapeutics; yet it is true. According to some of the best authorities the maximum dose of extract of digitalis is about one-half as great as the maximum dose of extract of belladonna; while strophanthin, the active principle of strophanthus, is three times as poisonous as atropin, ten times as poisonous as strychnin, and twelve times as poisonous as absolute hydrocyanic acid.

POSOLOGY.

	WOOD.	BRUNTON.
Digitalis extract. . . .	$\frac{1}{4}$ gr.	$\frac{1}{3}$ gr.
Nux vomica extract . .	$\frac{1}{4}$ gr.	1 gr.
Belladonna extract . .	$\frac{1}{2}$ gr.	$\frac{1}{4}$ gr.
Strophanthin.	$\frac{1}{200}$ gr.	
Atropin	$\frac{1}{60}$ gr.	$\frac{1}{20}$ gr.
Strychnin	$\frac{1}{20}$ gr.	$\frac{1}{10}$ gr.
HCN	$\frac{1}{16}$ gr. computed	$\frac{1}{12}$ gr. computed.

It would be considered dangerous pharmaceutic practice to allow preparations containing atropin, strychnin or hydrocyanic acid to be sold, without first being subjected to careful chemic assay and standardization. The United States and other pharmacopeias give elaborate methods for the exact quantitative determination of these constituents; while owing to the fact that the contained active principles of the heart tonics are glucosides, so easily decomposed by chemic manipulation that an assay can not be made, no directions whatever are given for the determination of the physiologically active properties of the galenical preparations and the tests for the purity of the respective glucosides are of little value. Crude digitalis, strophanthus, etc., may be mixed to a greater or less extent with foreign material or inferior drugs when they come into the hands of the pharmacist or manufacturing chemist. By careful botanic examination the adulterating substance can be detected, and the advisability of garbling or rejecting the lot will depend upon the extent of the impurities. Comparatively little difficulty is experienced in obtaining supplies of digitalis suitable for manufacturing purposes, since this drug is collected in civilized countries. With strophanthus seeds, however, which are imported from savage Africa, much difficulty is experienced.

In order to keep the length of this paper within reasonable limits I shall speak mainly of the latter drug, its active constituent, strophanthin, and its pharmaceutic preparations. These will serve as types showing the proposed method of assay. About thirty varieties of strophanthus have been discovered. It is claimed that only six of these varieties contain strophanthin, while a few contain the still more active glucoside, ouabain. Holmes of London, claims that some of the strophanthus found on the British market contains the seeds of other plants. In America, however, the crude drug generally consists of a mixture in varying proportions of strophanthus Kombé and strophanthus hispidus. Opinions vary greatly regarding these, some authorities claiming that they are distinct species, while others believe they are merely varieties of the same thing. Preference is generally given to strophanthus Kombé, since it contains about 0.95 per cent. strophanthin, while strophanthin

hispidus contains only about two-thirds as much. The amount of contained strophanthin is partly dependent upon climatic conditions. It is a well-known fact that the physiologic activity of digitalis leaves varies within wide limits from year to year.

Strophanthin, having the formula $C_{21}H_{48}O_{12}$ (Arnaud), is believed to be the only active constituent of strophanthus hispidus and strophanthus Kombé. Some investigators, however, claim that strophanthidin also is found. Fraser and others oppose this view, believing that strophanthidin is merely a decomposition product of strophanthin. Strophanthin, like other glucosides, is easily decomposed by acids. It is readily soluble in water and alcohol, but almost insoluble in ether and chloroform. Pure or impure strophanthin, or pharmaceutic preparations containing the glucoside, when brought in contact with sulphuric acid, a trace of ferric chlorid being present, yield a bright green color. This reaction is not conclusive, however, since ouabain can not be recognized in the presence of strophanthin. Holmes, who has given this point much attention, claims that only by purchasing the seeds in the follicle and testing a seed from each follicle, can a reliable preparation of strophanthus be made. An assay based on the amount of extractive contained in a given tincture of strophanthus, or other preparations of the heart tonic is of little value to the physician, since the extractives consist largely of chlorophyll and other inert substances.

After a careful consideration of the difficulties preventing a chemic assay of the heart tonics, and of the great importance to the medical profession of some means of standardizing them, I decided to experiment on living animals, believing that data might be obtained whereby the physiologic activity of the crude drug, its pharmaceutic preparations and active constituents might be ascertained. Since it could not be taken for granted that every sample of strophanthus seeds or digitalis found on the market was active, it seemed best to adopt methods for determining first of all, whether the specific action of the heart tonics was manifested by the sample of drug; and second, to find methods for standardizing them.

QUALITATIVE REACTIONS.

Very extensive pharmacologic researches have shown that the several heart tonics act in much the same manner, differing mainly in degree, upon the factors concerned in the maintenance of the circulation of the blood. The most important phenomena observed are slowing and strengthening of the heart-beats and increased blood-pressure. I believe only two series of experiments are necessary in order to show whether a given sample of drug possesses the specific action desired; viz., the application of a solution of the crude drug or active constituent to the laid-bare frog's heart, noting the slowed rhythm, the less and less perfect diastole, increased systole and finally, systolic standstill of the ventricle; and the intravenous injection of such solutions into dogs or rabbits, observing the variations in blood-pressure and heart-beats, as shown by graphic tracings recorded on the kymograph. Other reactions might be obtained in addition, but are not necessary. The physiologic activity of each sample of drug examined should be compared with a standard sample of known strength.

QUANTITATIVE ASSAY.

A quantitative estimation by pharmacologic methods of the activity of the heart tonics is a much more difficult problem than is a qualitative assay. Many series of experiments were necessary in order to decide what method or methods were best suited for this work. Too great variation was exhibited in the results obtained from blood-pressure experiments on dogs, rabbits, etc., and such experiments are, moreover, quite complicated and difficult to carry out. I found that fairly accurate data could be obtained from the application of a solution containing strophanthin, digitalin, etc., to the laid-bare frog's heart, comparing the action of the drug thus tested with that of a sample of known strength. This method, however, was finally abandoned for a simpler one, which gives much better results. It seemed to me quite probable that the strength of the heart tonics could be determined from their killing power when administered to the lower animals. Accordingly, rabbits, guinea pigs, rats, frogs, etc., were employed for determining the minimum fatal dose of the drug. I finally chose frogs as being best adapted for this purpose. Different species of frogs vary considerably in reaction to the poisons, but the same species behave much alike. I have found it best to employ frogs of a nearly uniform size for the standardization of any particular tonic. Since it is impossible to obtain on the market frogs of exactly the same size, it is best when one has a large number of samples to standardize, to have the frogs separated into lots by weight, those in each lot not varying over three grams; then we can use those weighing 10 to 13 grams for strophanthin, those weighing 14 to 17 grams for tincture strophanthus, those of 18 to 21 grams for tincture digitalis, etc. Frogs weighing less than 30 grams can be obtained at a very reasonable price from fishermen, as they are too small for the table. However, it is necessary that from the moment of capture they be handled with great care and kept in wet moss, etc., until they arrive at the laboratory, when they should be at once transferred to suitable ponds.

The method of administering the poisons and observing results may be briefly stated as follows: Dissolve the strophanthin, or tincture of strophanthus, in normal saline solution. The strength of the medicated solution should be such that the total quantity to be injected shall not exceed .5 c.c. The fluid should be measured by means of very slender pipettes, graduated into hundredths, into round-bottomed capsules of about 1 c.c. capacity, from which the last drop may be taken up in a narrow pipette having a long slender point, and the injection then made through the frog's mouth into the abdominal lymph-sac. Great care should be taken not to puncture the skin, as this will allow a portion of the injected fluid to leak out. After injection the frogs should be placed in wide-mouthed frog glasses, the plates containing about a quarter of an inch of water. It will be necessary to inject several series of about five frogs each for each sample of the drug to be assayed, a first series to be injected with drug of known standard strength. After testing a large number of tinctures of strophanthus I found that 0.00015 c.c. per gram body-weight, represented fairly well the toxic activities of an average sample of tincture prepared from strophanthus (Kombé).

The minimum fatal dose of tinctures strophanthus prepared from various lots of drug obtained from the American market was found to be as follows:

1	.00015	4	.00012
2	.00026	5	.00013
3	.00015	6	.00015

7	.00010	11	.00016
8	.00015	12	.00015
9	.00022	13	.00025
10	.00017	14	.00033

The several tinctures were prepared by one process with the same menstruum.

The second series are to be injected with doses ying considerably in size. The third series are to injected after the approximate dose of poison has n found from the second series. From the third es we may almost surely fix the minimum dose. ourth series should finally be injected, which will the limits of strength very closely. The minimum l dose should kill at least three frogs out of five. less number die it is best to inject another series h doses one point greater.

One very important advantage of the method above lined for the assay of the heart tonics, is the fact t various kinds and sizes of frogs may be em- yed at any season of the year, the only essential ng that at the time the assay is made the standard d unstandardized preparations should be tested at same time, the frogs being of exactly the same cies and kept under exactly the snme conditions, nparative results only being necessary, since the ndard solution maintains its activity almost entirely mpaired, as shown by tables III A and III B.

A standard tincture of strophanthus retains its ength very well, as is shown by the following tests, de on the first standard tincture I employed:

TABLE III A.

	Minimum fatal dose
July 6, 1897	.00015
Oct. 19, 1897	.00015+
Dec. 23, 1897	.00015
Feb. 23, 1898	.00015—
April 25, 1898	.00015

The loss in strength was so little in nearly one year t it came within the limits of error. Similar re- ts are observed in regard to the permanence of a ncentrated tincture of strophanthus.

TABLE III B.

	Minimum fatal dose
July 28, 1897	.0000037
Nov. 10, 1897	.0000037

The ease with which we may always keep on hand standard preparation of the heart tonics greatly ilitates the carrying out of the test and the accu- y of the results as compared with those obtainable h diphtheria toxin or antitoxin, both of which lat- lose their active properties in a comparatively ort time.

TABLE IV.

	Minimum fatal dose
Strophanthin No. 1	.000009
" No. 2	.000001
" No. 3	.000001
" No. 4	.00000062
" No. 5	.0000001
" No. 6	.0000001

The foregoing table shows the variation in the ength of different samples of strophanthin which re obtained from three of the best manufacturing emists in the world. They were supposed to be re strophanthin, yet one sample is ninety times as ong as another, the others varying between these nits. The digitalins also vary greatly in strength, t much less than strophanthin. Both strophanthin d digitalin are given daily in tablet or pill form, the nount of active ingredients being apportioned by weight. A splendid opportunity for a sudden termination of a favorably progressing heart disease, should the patient be obliged to have his prescription refilled from a fresh bottle. The only way that such remedies can be taken with any degree of safety is to have them prepared from stock of known physiologic strength. I will not dwell upon this subject longer at present, but desire to say in conclusion that the method of assay herein described is put forth in the hope that others will experiment along this line. I do not claim it is the best method of pharmacologic assay that may be devised for this group of therapeutic agents, since I have not yet satisfied myself that it is applicable to every one of the members of the group, but I do claim that some method of assay should be employed.

THE GREAT THERAPEUTIC IMPORTANCE OF A RATIONAL ADAPTATION OF CATHARTICS TO THE PHYSIOLOGIC FUNCTIONS OF THE GASTRO-INTESTINAL SYSTEM.

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The skin or external integument may at first thought seem to constitute a much greater surface than the more hidden part known as the internal integument, but the latter really represents much the greater area. This is due to the smaller number, size and depth of the openings and duplicatures existing on the skin for absorbent, secretory and excretory purposes, while the internal integument possesses much more numerous and larger duplicatures, with more numerous, larger and longer glandular and absorbent structures. The part of the internal integument that pertains to the respiratory system being excepted, the remainder, reaching from the margin of the lips to the verge of the anus, constitutes, with its appertaining or collatitious viscera, what is designated in this paper "the gastro-intestinal system."

By function is to be understood a work or process accomplished in a living part by the operation of chemical, mechanical and vital laws. We shall therefore regard function as synonymous with process. Our allotted time would not suffice for a consideration of all the processes or functions that may take place in the long course and many parts of the gastro-intestinal system. Many such processes may be yet undiscovered and none of them, in the present state of physiology, may be fully understood. Our task will be more feasible, more simple and more useful if we restrict our consideration to six leading processes whose existence may be assumed to be admitted. These processes are the digestive, the secretory, the absorbent, the excretory, the peristaltic and the disinfective. It will doubtless be further granted that these processes, when existing in true relationship, regularity and harmony, contribute a large and essential contingent to human health; that whenever their correlation is disturbed or destroyed there follows a corresponding amount of disease; that this disease with its cause or causes demands remedy, and that a proper application of the needed remedy constitutes the proper therapeutics. Moreover, it seems obvious that whatsoever process or processes—whether digestive,

secretory, absorbent, excretory, peristaltic or disinfective—be primarily or paramountly disordered in any actual case, the same must indicate the special remedy or combination of remedies needed in that case.

As analogy easily places all classes of remedies under this general rule, and requires of physicians the use of a like wholesome discrimination in the employment of all remedies, our thesis, abstractly viewed, may be regarded as established, and the query may be raised: Why is it proposed to apply to the class of cathartics alone a rule applicable to all classes of remedies? Or: why is not the rational adaptation of other classes of remedies as much to be enjoined as that of cathartics? The answer is clear and easy. The fact that the rule applies to all classes of remedies does not remove all cause for specially emphasizing it in regard to cathartics, but really furnishes strong reason for its rigorous enforcement in the use of remedies so continually resorted to, so speedy, and so satisfactory in action and so nearly unapproachable in most essential, extensive and beneficial results.

The contents of the gastro-intestinal canal are related to the body as the soil is to the plant, and as the life, growth, and vigor of the plant depend essentially upon the nature and condition of the soil, so do the life and health of human beings depend upon the character and management of the contents of the alimentary canal. And as the cultivation of the soil is tantamount to the cultivation of the plant, so the wise management of the contents of the gastro-intestinal system is a leading instrumentality in the conservation of human health, and while, in this work, the worth of a proper diet, control of the appetite, occasional fasting, massage, etc., are recognized helps, yet in all urgent or grave conditions, the main dependence must be upon the more thorough work of cathartics or purgatives, which are here used as synonymous with each other, and may be defined as that class of remedies therapeutically used to cleanse the gastro-intestinal system by increasing the frequency, copiousness and fluidity of the alvine discharges and otherwise modifying the quality of these discharges. In whatever mode administered, whether orally, hypodermically, epidermically, by enema or by suppository, they serve directly or remotely, primarily or secondarily, to unload the bowels, to deplete the general system, to promote absorption, to produce revulsion, to eliminate morbific matters from the blood and tissues, to modify favorably local action by stimulation, sedation or alteration. With so wonderful a range and power of action, it is no wonder that cathartics are indispensable in virtually all diseased conditions as

1. Fevers—intermittent, remittent, continued, eruptive, ephemeral, or traumatic.
2. Inflammation—acute, chronic, cerebral, thoracic, abdominal, pelvic, or neuritic,
3. Constipation—acute or chronic; colic of the various kinds; dyspepsia.
4. Dysentery and diarrhea.
5. Hemorrhages—active and passive epistaxis; hematemesis; hemorrhoidal menorrhagia; metrorrhagia; hematuria.
6. Neurotic disorders—hysteria, chorea, epilepsy, tetany, neuralgia, lumbago and sciatica.
7. Dropsies—active and passive, acute and chronic.
8. Intestinal worms, all varieties.
9. Intestinal obstruction—impacted rectum, impacted colon.
10. All diatheses, cachexiæ, and dyscrasiæ, as the hosts of skin diseases.

Thus the cleansing action of cathartics, beginning primarily and conspicuously in the gastro-intestinal system, proceeds steadily and surely, advancing step by step and from part to part, until it pervades the entire body, penetrating even the external integument and showing itself indispensable in the treatment of all cutaneous diseases. It must, therefore, be clear that without the great gastro-intestinal system *on and through which to act*, and the great class cathartics *with which to act*, the medicine of the past could not have made its great history; the medicine of the present would not possess its mighty power, and the medicine of the future could never accomplish its meditated glorious projects.

May not the great body of representative physicians congregated here today, within one hundred miles of a peak from whose sublime summit one could look down in rapture upon a panorama of forty thousand square miles, in full view, around and below, be pardoned if, centering their thoughts upon the one predominant basic class of remedies and realizing its crowning pre-eminence, they seem to see all other classes as lying far away and far below? And knowing that man's nature is such that, in the end, he accomplishes most by doing one thing at a time, may we not hope that while exercising careful and constant discrimination in the use of that class of remedies which most contributes to our satisfaction, our success, our usefulness and our reputation, we may be making a forward step in a happy habit of like care and discrimination in the use of other classes of remedies?

It may be well here to point out the difference between *rational medicine* and the *rational adaptation of medicine*. Unfortunately an invidious controversy has sprung up in favor of what claims to be *rational* as opposed to *empiric* medicine. And in the literature of the controversy the words "rational" and "empiric" are used, each in two different senses. In one of these senses "empiric" implies recklessness, ignorance and aimlessness; in the other, confidence in cure based solely on former experience or observation of cure of like cases by the same remedy, without any comprehension of the mode of cure. So the word "rational" as opposed to "empiric" generally refers to the effects of remedial agents upon healthy human beings or upon lower animals; these effects, though admitted to be purely physiologic, being considered a basis upon which to found the expectation of curative action in disease. All knowledge, in whatever justifiable way acquired, is useful and desirable, but as all actions and reactions in nature are the outcome of conditions and relations and must vary accordingly, the only sure and reliable basis of therapeutics is clinical experience, or *trial upon the sick*, and therefore, in its origin, *empiric*. Remedies suggested by physiologic experiments, by sanguine reports of credulous or interested persons, by extensive popular use, by aboriginal tradition or other similar insufficient grounds, need not always be sneered at, but must be first tried in the great court of clinical experience before they deserve to be duly accredited. The rational medicine recognized in this paper is that which, tested for an adequate time by a satisfactory number of competent persons, on multitudes of patients, in varied localities and climates, and in ascertained doses and modes of administration, has

en found to relieve the sick most surely, most ickly, most pleasantly and most permanently. And e selection and use of individual medicines and ethods so tested, and their careful adaptation to ch varied case and condition is what is meant by *tional adaptation.*

Among all the vast multitudes of human beings at have lived, that now live, or that ever will live, two faces have ever been found, are now found, or er will be found, with every feature, part and point recisely alike; so, and much more, in the relatively nall number of cathartics, it can not be expected at any two of the number will be found completely e in effect. Indeed, there are not now known, in e whole compass of materia medica, any two differ- t substances of perfectly identical action. In this, doubt, is found the reason why, in our generation authors, the alphabetic order is so much followed the text-books on materia medica—any satisfactory assification being despaired of—and the names of e classes used being compared to "a row of pegs which to hang ideas." But class names and sub- ass names of remedies, indicative of their most con- picuous, constant and regular action, are as old as edical literature and will never cease to be used in r language, our colleges, our hospitals and our omes. "Cathartics" or "purgatives" will continue be the name of a class, and its subclasses will be ifferentiated as laxatives, aperients, salines, chola- gues, hydragogues, drastics, etc., according to the haracteristic degree or variety of action produced. heir rational adaptation to the functions of the gas- o-intestinal system will consist in such selection, ombination and employment as may best tend to ecure the desired degree or variety of action.

It may be regarded as obvious that *cathartics must ounteract and diminish the digestive and absorptive rocesses* by accelerating the contents of the alimen- ary canal in their course, so as to allow insufficient ime for these processes to be duly accomplished. It ust also be obvious that *they must increase secretion, ecretion and peristalsis*, as the increased size, num- er, frequency, fluidity, and other characteristics of he alvine discharges clearly demonstrate.

It is hoped that sufficient has now been said to lead he practicing physician to consider the gastro-intes- inal system, not as a single long, homogeneous organ ith a single function, varying merely in its progress nd stages, but rather as a chain of many distinct rgans linked to each other, each organ in succession eing the part in which some special process takes lace, and to regard the remedies of the great cathartic lass, not as all of substantially the same effect, but s each endowed with some individual virtue or com- ination of virtues, and fitted to accomplish some pecial purpose, and instead of telling his patient to take a purgative," to prescribe definitely the partic- lar remedy, time, dose and mode of administration.

It may be well, however, to append a few practical facts, rules and reports illustrative of the importance of what it has been attempted to inculcate.

1. By excessive or prolonged use of certain cathar- tics, the gastro-intestinal system may have its suscep- tibility to their action so increased or diminished as to forbid their use.

2. Different cathartics, for various reasons, act dif- ferently on the different portions of the gastro-intes- tinal system, and should be prescribed in accordance with this fact.

3. Certain cathartics are specially repugnant or otherwise unsuited to certain persons, and should not be administered to such.

4. In case of cathartics, as of other remedies, over- action is apt to be followed by torpor; the special irritability of the part affected becoming exhausted and thus acquiring immunity toward the special remedy used, this immunity being of longer, shorter or even permanent duration.

5. Mercurial cathartics are regarded as antisyphi- litic, germicidal and disinfectant; as regulating the flow of bile, increasing this when deficient, moderat- ing it when excessive, restoring it when suppressed and correcting it when morbid. They are specially useful in warm, moist climates and in acute malarial infection, less so in chronic malarial cachexia, in tropic and sub-tropic dysenteries, in sclerosis of the liver and in obstruction of the common bile duct. This great variety and seeming contrariety in their action may be due in part to the doses, combinations and modes of administration used or to some existing condition of the patient.

6. Drastic or irritating cathartics should be avoided in cases in which there is already irritation of the stomach or bowels, or a tendency thereto.

7. In obstruction, in spasm or in great pain in the bowels, the less irritating and most surely acting cathartics, such as calomel or castor oil or the purga- tive salins, should be selected and combined with opium, hyoscyamus or other efficient analgesics.

8. In numberless conditions of disease the purga- tive waters of the great fountains of health—too numerous here to mention—wisely, beneficently and widely distributed over the earth, or the pure arti- ficial purgative salts, whether as cholagogues, hydra- gogues, deobstruents or alteratives, are more safe, sure, prompt, pleasant and efficient than other cathar- tics. Such are effervescing magnesium citrate in the obstinate nausea and vomiting of bilious and other forms of malarial fever; sodium hyposulphite in hem- ato-globinuric fever; magnesic sulphate or sodic sul- phate in the dysenteries of the warm climates, in dropsies, etc.

Case 1.—V. M., male, about 17 years old. Sick of bilious fever; nausea distressing; vomiting almost constant; restless- ness extreme; thirst insatiable; fear of dissolution pitiful, and thought of delayed relief worse than the fear of death.

Treatment: Effervesing citrate of magnesia, improvised by stirring two teaspoonfuls of powdered magnesium carbonate in two ounces of water in one glass and adding to one half ounce of water in another glass the juice prepared from a fresh lemon, then suddenly adding to the suspended magnesia the lemon water, rapidly stirring, and applying hastily to the eager mouth of the patient. At the same time a solution of soap in a half gallon of warm water was being made ready for lave- ment of the rectum and lower colon and was thoroughly used as soon as practicable. This line of treatment, pursued as required, and supplemented by sinapisms or ice to the epigas- trium, forehead and spine, speedily quieted the nausea, vomit- ing and restlessness, secured thorough cleansing of the alimentary canal and made ready the patient for the reception of quinin sulphate, 4 grains, at four-hour intervals—all that was further needed in the remedial treatment of the case. Sometimes morphin or other anodyne is an invaluable adjunct in the treatment of such a case.

In Dallas, Wilcox and some of the other counties of Middle and Southern Alabama, visitations of per- nicious dysentery occurred for several years—appear- ing and disappearing about the same time of year. Most of the visitations occurred in June, when the days were hot and the nights cool. So great was the fatality that a panic would seize a community when- ever the disease would break out, and this happened

here and there almost annually from 1848 to 1858. The treatment was calomel and opium by mouth, and solution of silver nitrate by rectal injection. With rare exceptions the termination was death. About 1859, what is now known as the "saline treatment," was generally introduced. This consisted in first giving in solution magnesium sulphate or sodium sulphate, with the addition of sufficient tinct. opii or tinct. opii camphorata to lessen the atrocious tormina and tenesmus, until copious, soft, semifluid "actions from above" took the place of the scanty daubs of bloody mucus, that are so strikingly characteristic of dysentery. Great good generally resulted from adding to the above treatment pellets of $\frac{1}{8}$ grain of extract of belladonna every four hours, to allay the great irritation about the anus and to relax its sphincters. In a few instances 30-grain doses of powdered ipecac, with one to two grains of powdered opium to each 30 grains of ipecac were given in pills at intervals of two to four hours as a substitute for the saline treatment. Since the adoption of the saline treatment in the localities above mentioned, dysentery is seen mostly in sporadic cases, has a small death-rate and has ceased to excite any great popular dread.

Case 2.—L. W. J., practicing physician, age about 40 years, a constant but not very excessive alcoholic drinker, became subject to spells of pain in the region of the gall-bladder, for which he resorted to the use of blue mass. Regularly in a day—less or more—after taking blue pills his skin and conjunctivæ would become deeply jaundiced, his pain increased and his alvine discharges were paler and more adhesive. This succession of symptoms became so frequent and regular that he was advised to abstain from mercury, on the theory that he was suffering from biliary obstruction, and that the mercury, without relieving the obstruction, was increasing the secretion of bile and thus poisoning and staining his blood and tissues. He was also advised to resort to a saline treatment, by using early each morning before breakfasting teaspoonful-doses of magnesium sulphate, sodium sulphate, magnesium citrate, artificial Carlsbad, or some other purgative saline. In a short while he was much relieved of his troublesome spells, and remained so until he passed from observation.

Case 3.—E. P., a little boy of about 5 years, who had been from tender babyhood, scratching and crying, day and night, with itch, was brought to me by his mother—one of the neatest and best of women and of housekeepers—for treatment. Under the prescription given, the patient improved considerably, but now and then, for months, I would be sent for to see the case. At length, the dear woman sent for me, and meeting me at the door, with streams of tears flowing down her soft cheeks, said: "Doctor, I want you either to *cure Edgar or kill him!*" "Oh! madam, you don't mean what you say." "Yes, I do," she replied; "I would rather see him dead and in his grave than to have him suffer longer as he does." In deep sympathy for the parent and the patient, and in deeper humiliation and discouragement at the utter failure of all the vaunted unguents, lotions, antiparasitics and disinfectants that had been applied to skin, to clothing and to bedding, I sat pensively down and wrote the following:

℞ Sulphur flores		℥i	31|103
Potass bitart		℥ii	62|206
Molasses		fl ℥iii	93|309

Mix and put in wide-mouth bottle.

Sig.—Shake or stir well before using, and give one teaspoonful morning, noon and night, or sufficiently often to keep the bowels regularly loose.

In due course of time the case was satisfactorily cured, and the grateful mother so valued the prescription, that to the day of her death, she would furnish a copy of it to such of her acquaintances as suffered from cutaneous eruptions.

This report illustrates how remedies acting through the gastro-intestinal contents, pervade the whole body, pass through the skin and saturate and disinfect the very clothing of the patient.

The parasitic worms, such as tape-worms, lumbricoids and ascarides, have their habitat, not in the human body itself, but in the contents of the gastro-intestinal system, and such vermicides as des... them are generally injurious, and many of th... highly dangerous to the patient. They, there... require to be combined with cathartics, which, *preventing absorption and increasing peristol...* hurry on out of the alimentary canal the deleteri... anthelmintic substances, the disabled or destro... worms, and the other morbid and morbific conte... of the canal. In this way, oil of turpentine and s... tonin, not only do better service by being all direc... applied to the worms, but being kept from being ... sorbed and out of the blood, do not produce pain... strangury, dangerous irritation of the urinary orga... suppression of urine and fatal nervous intoxicati...

This report is made from no particular case, b... fairly represents many that actually occur, and ap... illustrates the great therapeutic importance of ... rational adaptation of cathartic remedies to the phy... ologic functions of the gastro-intestinal system.

ACETANILID: ITS USE AS A PREVENTIV... MEASURE IN PREMATURE EXPUL... SION OF THE OVUM.

Presented to the Section on Materia Medica, Pharmacy and Therapeu... at the Forty-ninth Annual Meeting of the American Medical Asso... ciation held at Denver, Colo., June 7-10, 1898.

BY STEPHEN HARNSBERGER, M.D.

CATLETT, VA.

Squibb tells us that antifebrin and acetanilid a... identical. This latter drug, under the title of ant... febrin, was discovered by Gerhardt in 1845, but it w... left to Cahn and Hepp in 1886 to bring it before th... medical profession as a remedial agent. Acetanili... is a neutral chemic body, produced by the addition ... glacial acetic acid in excess to anilin. It should be... white crystalline powder, slightly soluble in hot wate... sparingly so in cold water, and quite easily dissolve... in alcohol, strong wine or ether. To detect acetan... lid in the urine the latter is shaken with chloroform... and the residue left on evaporation is heated wit... mercurious nitrate, when an intense green col... develops.

From the published clinical reports on the subject... it is plain that its clinical application has been con... fined principally to its use as an antipyretic, and to ... less extent, to its sedative action in various nervou... disorders and for the relief of pain; but so far as ... am informed, Dr. J. H. Wolfe, of Elkton, Va., and... myself are the first to find acetanilid a serviceable... remedy in threatened premature expulsion of th... ovum. During the past few years I have used thi... drug in varying conditions of advantages and disad... vantages, in a considerable number of cases, and wit... decidedly encouraging results. At no time have ... witnessed unpleasant symptoms, and from its favor... able action heretofore I am naturally led to believ... it to be absolutely safe, and injurious only when ad... ministered without regard to reason or prudence.

Formerly I had resorted to viburnum prunifolium... alone or combined with potassium bromid, to meet... the pelvic symptoms, and to opium, in one of its... forms, for its general quieting effect upon the system... But the success of any treatment depends upon the... power which the remedies employed exercise over... the expulsive efforts of the uterus. Some of the pre... ventive measures used formerly, though they very... often restored the disturbed function, at other times... excited the uterine action by indirect stimulation, and...

thus defeated the final object. Opium, which was of old considered our sheet anchor in assisting to arrest uterine contractions, in its ultimate results, gives unquestionable instances of not being a trustworthy remedy. It must be noticed that its use too often produces a marked aberration of the functions of the stomach and bowels, and sometimes of the kidneys as well, secondarily at least, exciting the uterine contractions to uncontrollable effort.

Of course in administering acetanilid, as with many other drugs, it might be well for those not accustomed to prescribing it, to consider individual susceptibility and begin with small amounts, 5 to 7½ grains—0.32 to 0.50 grams. But even where the dose has been large, 10 to 15 grains—0.65 to 1 gram—and repeated at short intervals (one to two hours), I have observed no objectionable symptoms, certainly no alarming ones. It seems to possess a special relevance in such cases. Though I have frequently seen it pushed almost to the border-line of cyanosis, I am clearly of the opinion that one of the most striking advantages is the absence of any real unpleasant or dangerous effects. I have never had it produce nausea nor vomiting, collapse nor cardiac depression; in fact, I have seen it act seemingly as a cardiac stimulant in weak heart and as a systemic tonic in protracted nervous insomnia; neither cutaneous eruption nor ringing in the ears. The cyanosis of the lips and cheeks, which sometimes appears, is a symptom of no consequence. I have witnessed no marked action upon the secretion of the kidneys, occasionally an increased flow of urine and this only when the drug manifested a bracing influence upon the heart and pulse. Neither have I observed any evidence of its cumulative action. It does infrequently produce a rather profuse perspiration, but this in no wise interferes with the successful progress of the case, for, contrary to the belief of Dulácska, and perhaps of others, that the drug may, through the powerful action on the vascular system, induce dangerous hemorrhages, the close observer must admit that copious sweats cure hemorrhages. This has been determined too often to be laid down as a mere coincidence.

It is not in keeping with the title of this paper to enter fully into the causation of interrupted pregnancies, but to better illustrate the action of the preventive measure I advocate, I think it may serve a good purpose to make a brief suggestion in this connection. I am inclined to believe that when more reliable statistics shall have covered two or more decades a notable increase in the number of interrupted pregnancies will become apparent. From the result derived from a careful study of the circumstances surrounding such cases, I am also of the opinion that the disorder is not due to a great extent to single causes, but to a combination of several. And, in considering the causes, though it may be in conflict with authorities on the subject, nevertheless, I am constrained to believe that the great underlying cause is an inherited or acquired instability—a systemic and nervous depreciation brought on by the early operation of overstrained and other sinister influences incident to modern times and modern modes of living. By directing proper attention to the predisposing first cause, the tendency to abortions and premature labors can be notably limited. This plan certainly suggests itself to the mind as the only rational way, and at the same time, as we all recognize, it is the way not often left to the physician to follow. The great majority of cases of interrupted pregnancies are sprung upon us suddenly. Then what is to be done but to meet the emergency presented? Certainly we can not go back to undo the ravages remote to conception! The remedies at all serviceable heretofore have required adjuvants which have been frequently attended by evil sequences. In using acetanilid, adjuvants are never or seldom necessary, thus avoiding all reactionary phenomena. This, if for no other reason, should recommend its further trial as advisable in the treatment of threatened premature deliveries.

Whether affections of the endometrium are primary or secondary to mechanic or pathologic changes outside of the uterus, the fact remains that the functional integrity of this membrane is vitiated and that its potency as an essential factor of intrauterine life of the ovum is greatly compromised and natural fetal existence constantly jeopardized. During the course of the first two months and perhaps including the third, even where the symptoms are strongly suggestive, it is no easy matter to forecast the probable pregnancy with any measure of certainty, but with grounds for a fairly correct diagnosis and where nature seems too dilatory or unable to accomplish a *restitutio ad integram*, acetanilid, 5 to 8 grains—0.32 to 0.51 grams—repeated in one, two or four hours, can commonly be relied upon as a helpful procedure. We frequently see women, who are usually regular, pass over a catamenial period. Their suspicions may be aroused, but at the appearance very soon thereafter of the menstrual flux, though it should be accompanied by an increased discharge and more pain, it is looked upon as only a delayed period—they being unaware that one of the clots which has been expelled contained the immature ovum. In just such cases, by the judicious administration of acetanilid a little before and continued a little beyond the usual time at which the monthly flux occurs, the vigor of the uterus seems to be increased and the staying qualities of the ovum strengthened. Again, in those cases of ovarian irritation, where there seems a tendency to the separation of the ovum at what would have been a menstrual period, I think most decided benefit will be found to follow the use of viburnum prunifolium and potassium bromid, with more or less regularity, and of acetanilid at the time of each periodic disturbance. The pain in the back during pregnancy is a nervous susceptibility, and all such patients should be specially careful and on every accession of pain should promptly seek rest and be put upon a few doses of this drug.

Acetanilid has proved of no less benefit in habitual than in simple threatened miscarriages. In a few cases of women who bore histories of habitual loss of the ovum during previous pregnancies, even where the symptoms were alarming—rhythmical uterine contractions, considerable hemorrhage and accompanied with more or less pallor and vomiting—a state of calm was quickly reached under the administration of acetanilid in doses of 10 to 15 grains—0.50 to 1 gram—at intervals of one, two or more hours.

But I will desist from the temptation to refer to every clinical aspect in which acetanilid might be used to advantage; neither will I enter into a discussion of the treatment of the endometritis, nor of the many other pathologic conditions which tend to contribute to interrupted pregnancies—these will occur to the thoughtful physician. It may be well, however, before leaving the subject, to call attention to the fact that undesirable symptoms are minimized by admin-

istering acetanilid with alcohol, strong wine or ether.

I was requested to prepare a paper for this meeting of your association and have presented this one, in order, if possible, to have acetanilid more widely used and its virtue as a preventive measure in premature expulsion of the ovum more fully appreciated.

After I had completed my paper, I received a letter from Dr. Wolfe, in which he gave me the following brief notes of three cases:

Case 1.—Was called in August, 1891, to see Mrs. E. H. W., of Elkton, Va, She had on previous occasions aborted three times and said she was confident such would be the case that time. I gave her three powders of acetanilid of 10 grains each—one to be given every hour, if required, until relieved. She took one at 4 P. M. and one at 10 P.M.; the third she never took, as the first two were sufficient to quiet every symptom. Patient was delivered three months thereafter of a fine girl baby.

Case 2.—Mrs. E. H. H., sent for me Dec. 10, 1895. Pains every ten to fifteen minutes and rather severe. I at once gave her 10 grains of acetanilid. Spent the night. No more pains. No relapse for three months, when, after washing some household goods, sent for me in great haste. Found her quite sick. Repeated prescription with the same result.

Case 3.—Mrs. Wm. D., of Elkton, Va. In August, 1895, was called to see patient. Suffering very much; labor pains every ten minutes. Had had ten abortions in succession and no living children. Patient was terribly alarmed. Gave her 15 grains of acetanilid every two hours, with complete success. She went her full time, only taking some dozen powders during that period.

In concluding this letter, Dr. Wolfe says: "No unfavorable effects and but little sweating. I might add that I have used the medicine in many other cases with success."

INTESTINAL OBSTRUCTIONS FROM GALL-STONES, WITH REPORT OF A CASE.

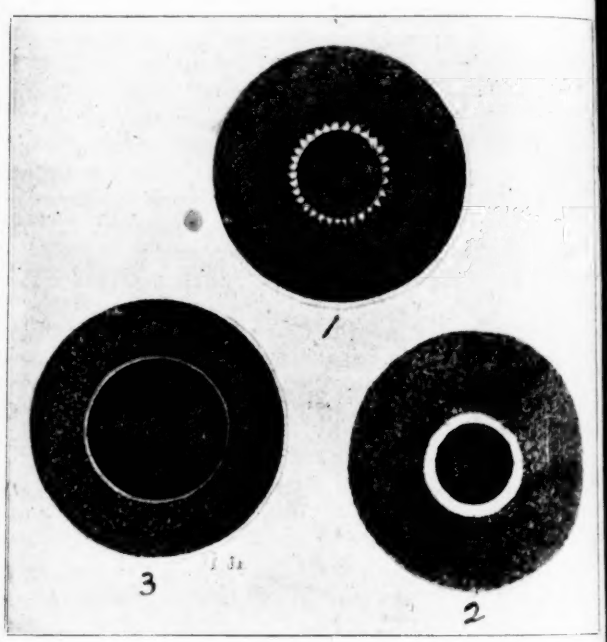
Presented to the Section on Surgery and Anatomy at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1897.

BY JOHN PRENTISS LORD, M.D.

OMAHA, NEB.

Sunday, March 14, 1898, I was called in consultation to see a man, aged 70 years, who was suffering from acute intestinal obstruction, and suffered from vague gastro-intestinal symptoms for about one year, which had caused him to take medical treatment most of the period, without relief, he had been reduced in general health and strength, although he had maintained a very fair degree of vigor, and had filled his place as clerk uninteruptedly until the previous Thursday, when he was attacked, while at breakfast, with a sudden acute pain in the left side, midway between the umbilicus and the spine of the ileum. He left his breakfast uneaten and went to the office where he continued to suffer from pain and nausea; had an evacuation of the bowels and vomited. At ten o'clock he saw his physician, Dr. Malster, who prescribed and sent him home. The pain did not continue to be troublesome, though the vomiting did; and became stercoraceous on Friday. Large doses of calomel and salts, together with frequent enemas, had not moved the bowels, and on Sunday it had become apparent that relief must be obtained by other means. Vomiting was now frequent and distressing, markedly fecal, and his strength was waning. His temperature was 101 and pulse 120. The tympanites was moderate and palpation produced little pain. A tumor-like mass was recognizable in the pelvis, below and internal to the sigmoid, and it was thought to be most likely a volvulus, with a loaded loop of bowel producing the tumor, which would account for the suddenness of the attack. An operation was recommended as the only recourse promising relief; its dangers, in our aged and enfeebled subject, were fully set forth to the family, who having lost three relatives following surgical operations, during the preceding two years, did not give their immediate consent. Lavage of the stomach was thoroughly performed at 1:30 P.M., and no vomiting had taken place when he reached the hospital, a distance of two miles, at 5 P.M. The stomach was again irrigated before the operation, which immediately followed.

The bowel containing the obstructing body was readily brought through a two-inch median incision, and while surrounded by gauze and the intestinal contents controlled by the fingers of an assistant, through the usual longitudinal incision, a mass of material was removed. The mucosa was approximated by Czerny sutures, then a continuous of the serosa, when the line of union was finally fortified by Lembert sutures.



Inspection of the gut revealed a considerable deposit of fibrinous lymph upon its surface, which gave the serosa a rather ragged appearance. One particular portion of a rough, grayish character, excited my attention, but resembled the other portions so closely that the gut was considered in condition to return.

The patient was forty minutes upon the table; suffered little or no shock; had no vomiting after operation, and within a few hours took salts hourly until bowels moved repeatedly. The patient's condition was ideal, pulse 85 and temperature 98. Strychnia had been used hypodermatically, since before the operation. No food was allowed by the mouth for forty-eight hours, but nutrient enemata with alcohol were administered. All went well until the third day, when, after a repetition of the saline, evidence of peritonitis manifested itself. The following day the wound gave evidence of infection and the retention worm-gut sutures were removed and on the fifth day the wound margins were separated and a thin pus with a distinct fecal odor escaped, after which there

was an improvement in both local and general symptoms, which had become quite marked, and from this time convalescence rapidly followed. The fecal odor and discharge disappeared with no apparent ill consequences, and the patient has made a complete recovery, he now being better than for more than a year previously.

The specimen removed was of about the size and shape of a small hen's egg, but more sharply conical near its lesser extremity, which had the appearance of having sustained loss of its substance by fracture of its apex. The body was, for the most part, smooth with the exception of a small irregular elevation on its side, which I now believe to have been the cause of the spot of questionable vitality referred to in the history, and which gave way on the third day, producing the small perforation, which by rare chance terminated most favorably.

The lesson from this should be to inspect carefully even apparently smooth solid objects removed from the gut, that their damage to its integrity may be estimated at the time; for the pressure effects from within from even a small elevation upon the surface of the obstructing body, may be very considerable, with but slight evidence upon the serosa; which may be easily overlooked or underestimated.

Section of the specimen shows it, without a doubt, to have a gall-stone for a nucleus, the central portion possessing the characteristic radiation of cholesterin crystal, together with the salts from the decomposition of mucous. The concretion of material about the nucleus is largely composed of biliary sediment, but in the absence of a complete analysis, I am unable to say whether it is wholly of gall-bladder formation or not. A partial analysis shows that it is composed for the most part of biliary sediment and fat. The bile contains a considerable proportion of fat, so that this does not preclude the possibility of its being wholly of gall-bladder origin. There being an entire absence of a history of gall-stone, colic or jaundice, it is probable that this entire body, or the stone represented by the nucleus, found its way into the bowel by ulceration. While the common duct is capable of much distention, yet all will agree that it would not give passage to a stone of the dimensions of this specimen, and certainly not without pain, of which there was no history. The statement of the old-time authors that stones as large as hen's eggs are passed by the duct, must not be credited, and we are forced to the conclusion that their belief in their passage through the duct, was by inference, and mistaken for their exit by ulceration, which process can no longer be in doubt; fistulæ, or evidence of their previous existence, having been shown between the gall bladder and duodenum in thirty-three out of fifty-one autopsies, as well also, were fistulæ found between other organs. "Few stones large enough to produce obstruction come from the duct" is among the conclusions arrived at by Roth. Literature and weight of evidence, however, would seem to indicate that most of these cases of obstruction from gall-stones are developed after the gall-stones have remained in the intestine for a considerable time, and had their size augmented by the concretion of fecal matter upon their surfaces, which is a possibility in the present instance. That single stones of this size do form within the bladder is true, they having been found at autopsy, and also having been passed within a few days after symptoms of local inflammation, ulceration and obstruction had taken place. The bowel may become dilated or sacculated to accommodate the stone, or it may become lodged in Meckels' diverticulum, in any of which instances it may become dislodged at any time to form a more or less complete obstruction. While obstructions from gall-stones form about 2½ per cent. of the cases of intestinal obstruction, according to Leichtenstern's figures (which are now far from recent) it is probable that with a closer analysis of cases in these later days, when these conditions are much better understood, the percentage will be considerably increased. This inference does not appear unwarrantable when we consider the statement of Bevan that cholelithiasis exists in from 8 to 10 per cent. of individuals from 30 to 60 years of age, and after 60 years, in the surprising number of 25 per cent. of cases examined postmortem. Of the cases of intestinal obstruction from gall-stones, 80 per cent. are womem. This affection is very rarely met with in those under middle age, the great majority being well advanced in years.

The manner in which obstruction takes place most frequently is by mechanical obstruction of the intestine from the interrupted passage of a large stone; the stones of less size than the caliber of the intestine are capable, in some cases, of bringing about obstruction, which would seem to be due to an early stimulation and contraction of the circular muscular fibers always found in this as well as in other forms of obstruction. Mayo Robson classified three other varieties of obstruction resulting from the effects of the pressure of gall-stones, which he described as the paralytic form, dependent on local peritonitis in the region of the gall-bladder.

Volvulus of the small intestine depends either on the violence of the colic, caused by an attack of cholelithiasis, or on the contortions induced by the passage of a large concretion through the small intestine, and obstruction depending on adhesions or on stricture the result of past gall-stone attacks, or of healing fistulæ.

From the foregoing, as well as the fact that gall-stones may exist for years without knowledge of their presence, it can not be said to be a reflection upon us if we are unable to make a diagnosis previous to operation, though with a previous history, causing the straws in the stream of events to point toward the gall-bladder, we may be guided to the source. Then, too, it is usual that pain is sharp and sudden, though not protracted. Vomiting is early and quickly stercoraceous, usually within twenty-four hours, except in chronic or subacute cases, when it may be delayed several days, and distention is not a prominent symptom, for the stone may be, and usually is, above the ileocæcal valve—the lower ileum in half of the cases. The nearer the stone to its origin the less the tympanites. The cases of greatest abdominal distention, it will be remembered, are where the obstruction is in the rectum, sigmoid, or some part of the large intestine. The passage of flatus or feces amounts to no more than a possible evacuation of the bowel below the obstruction, which is most likely to take place during the height of the pain and tenesmus, accompanying the onset of the attack. Palpation may reveal the situation of the stone in subjects not too fat. The possibilities of spontaneous relief by the passage of the stone, is probable in from 30 to 50 per cent. of the cases. The remaining 50 or 80 per cent. will die if unrelieved by operation. The mortality from oper-

ations hitherto has almost equaled these figures, so that these cases which should be naturally favorable for successful operative relief, present difficulties which leave it an open question when to interfere, and how long to wait before operation is resorted to. Delay can not be said to be a safe rule in any form of intestinal obstruction. It is my belief that if all cases were operated upon within the first twenty-four hours the mortality would be reduced. We must therefore impress the general practitioners with the necessity of earlier reference of these cases to us, as we must in all cases of intestinal obstruction. We must lessen the number of last resort operations. More of the unfavorable results in operative cases are due to the condition of the patient and the parts involved, than to the fault of the operation.

The general practitioner may treat a case upon rational lines, in absence of, or because of unobtainable skilled surgical aid, and present statistics will justify him in his course. But under what we may consider favorable surgical circumstances, I believe that fecal vomiting should be the signal for operative interference in gall-stone or any other form of obstruction, where proper and adequate measures have been tried without relief.

The measurement of this stone soon after removal was four and one-half by six inches in circumference, and was two and one-sixteenth inches in length. Marshall of Glasgow reports a case measuring one and three-quarters inches, by three and one-quarter inches in circumference. Smith and Fagge report a stone two and one-half inches, by four and one-half inches in circumferance. Conglomerate stones, or those formed by the union of several stones, have made larger bodies than single stones. Enteroliths and pure concretions become larger, but these are almost always formed in the large intestine.

Lavage of the stomach was referred to in the history, which is a treatment of great value in both the medical and surgical treatment of intestinal obstruction, in my experience. And I will here say that it is my usual practice to precede operations for the relief of intestinal obstruction with this procedure; and, while it may be the practice of many operators, I do not recall having seen, nor having heard it recommended, it having occurred to me by witnessing patients of mine almost strangle from vomitus in the larynx during anesthesia. Indeed, effort at vomiting does not have to take place to cause the stomach contents to overflow in many of these subjects, over-distended with physic and feces. The lowered head and a final palpation of the abdomen by the operator are quite sufficient to cause a flood of the fluid to embarrass the anesthetizer and endanger the patient, immediately by suffocation, and remotely from the inspiration of the highly infectious intestinal contents. The good results from this practice are always gratifying, not only during anesthesia, but following it. There was no vomiting in this case, which enabled the patient to retain salts as soon as consciousness was restored.

If the vitality of the gut is not free from suspicion it should not be returned until the proper protection has been afforded against subsequent leakage. A few Lembert sutures would have prevented the very dangerous mishap in the case reported. Omental grafts are an additional security to the line of union, and should doubtless be more frequently employed.

THE USE OF ELECTRICITY BY THE GENERAL PRACTITIONER.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY CALEB BROWN, M.D.

SAC CITY, IOWA.

In the successful prosecution of any line of work it is necessary to have good tools to work with, and in no calling is this more important than in the treatment of disease, the relief of suffering and the prolongation of life, which are, or should be, the aim of every physician. Were we to examine the armamentaria of the general practitioners of medicine, we would find that where they had electrical apparatus it would, as a rule, be the farthest from up-to-date of any appliances they might have. The reasons for this are twofold: first, the market is flooded with, so far as treatment of disease is concerned, worthless but not always cheap electrical appliances, the fancied merits of these machines being constantly paraded before the medical profession by manufacturers and selling agents; second, physicians are not sufficiently well informed as to what they should or should not buy. Were we to ask every general practitioner in this country: Do you use electricity in your practice? many of them would answer yes, but should we examine their apparatus we would find in a very large per cent. of cases that their electrical outfit consisted of a so-called family or physician's battery, a box containing one or more cells, with a coil attached for the faradic current and possibly an arrangement for the galvanic current, but absolutely no reliable means of regulating the dosage. No rheostat, no milliampéremeter, none of the modern appliances.

While I do not say that such a machine is of no possible use in the treatment of disease yet I would most emphatically say that it is not what we want if we are going to do good, scientific work. As galvanism and faradism are the forms of electricity most used by the general practitioner I will confine my paper to this part of the subject, the electrocautery being used principally by the specialist, and static electricity, while it is one of the most useful forms of electric energy in the treatment of disease, yet is employed as a rule, only by those who use electricity quite extensively and are, to some extent at least, specialists in electro-therapeutics. Let us see then what apparatus is necessary for the proper use of galvanism and faradism. First is the cell for generating electric energy. Let this be a cell with carbon and zinc immersed in a solution of ammonium chlorid. For the galvanic current we will need from five to sixty or even more cells; connect these to a proper switch-board so arranged that any number of cells can be switched into circuit and also any cell or cells can be examined at any time as to their working capacity. It is then necessary to have a rheostat for controlling the current and a milliampéremeter for regulating the dose. The last named instrument is the most important, for without it no accurate work can be done, as we can only estimate the dose used by the number of cells in the circuit or the sensations of the patient, both of which are very unreliable. I will not attempt, for space will not permit, a description of a good faradic apparatus, suffice it to say we must have two to four or six cells like those in our galvanic battery, and a series of coils varying in length and fineness

ire, according to the condition we wish to treat, with an interrupter that can be regulated to give or rapid vibrations.

full description of the proper use of the positive negative poles in galvanism can not be given in paper but is better learned by a study of individ- diseases in text-books on electro-therapeutics. ile polarity of the faradic current has been denied ome yet there is certainly a difference in effect duced by the application of the separate electrodes. may say as a rule that the most active polarity is negative and should ordinarily be placed nearest affected part. Or in general faradization the cur- should be directed with the blood-current.

n studying these two forms of electricity—galvan- and faradism—in their physiologic effects and apeutic uses we must remember that the galvanic ent is of large ampérage or volume and small volt- and its action is chemic or electrolytic, while faradic current is electro-mechanical, having a low érage but a very high voltage. Having these thoughts firmly fixed in our minds we have made art in the right direction in the study of the effects lectric energy on the animal organism.

f we also understand the pathology of disease and e proper electric apparatus we are ready to be- the practice of electro-therapeutics; but to carry ut successfully we must understand the subject of tricity as a physical science, we must know our tomy, physiology and pathology perfectly, we must n to use it where indicated and dispense with it n it is contraindicated as we would any other ns of combating disease. I am not of those who k electricity a panacea for every ill or that it uld be universally made use of, but when intelli- tly used it makes our medicinal treatment more ctive.

irst among diseases treated by me in which I have nd electricity beneficial I would place goiter. I e treated this subject more fully than the limits of paper will allow in a paper read by me last year Harrisburg, Pa., before the American Electro-Ther- utic Association. In that paper I gave results of tment in quite a large number of cases of this ease. I will not devote space to describe the vari- forms of goiter further than to say that, aside from ue tumor growth, goiters are hard, soft, vascular ystic, according to amount of fibrous tissue, fluids lood-vessels entering into their structure. And may state, in a general way, that the harder and er a goiter the less curative effect as to reducing size will electricity have, yet on the other hand, hough but little may be done in reducing the size a firm goiter by electricity (aside from electro- ncture), yet it will relieve to a great extent the rous symptoms and pain, and even in exophthal- goiter we may do much to slow the heart, calm nervous system and improve the general condition our patient.

The proper form of electricity in this disease is gal- ism: placing one pole on the back of the neck, or ind the angle of the jaw, the other on the tumor, a y strong current is not necessary. Reverse the es, placing first one then the other on the back of neck or one on each side of the tumor, shifting em often enough that too great irritation of the skin ll not result. Give medicine if condition of system mands it. I have never used electricity in this dis- e that the case was not benefited both in decrease of size of gland and relief of nervous symptoms. Many cases are cured; in some the gland has again enlarged, others have remained cured. But when we remember that latent embryonic cells may be stimulated by an enlarging thyroid body and a true tumor result, amenable to surgical treatment alone. we see the importance of curing these cases in their early stages, and for this, one of our greatest aids is undoubtedly galvanism.

We who do a general practice often have patients come to us who complain of pain in various parts of the body, muscular soreness, lame joints and a general worn-out condition. I remember seeing a statement by some medical writer that when you have a patient with a pain you can not account for in bones, joints or muscles to give iodid of potassium, I usually go one step further and use, in conjunction with the iodid or any other proper medication, general faradization, and with happy results.

In neuralgia we often have great benefit from the use of electricity. If the pain in a nerve is caused by neuritis, electricity is perhaps not our best remedy, but the further we get from the acute inflammatory condition and the nearer to the chronic inflammation or purely functional trouble the better effect we will have from this agent, and in all such cases it is indicated and is very helpful. This is markedly so in sciatica. In using faradism in this disease use a high tension induction coil with negative pole on sacrum using an electrode four to six inches in diameter; connect a smaller electrode with the positive pole and place over the course of the nerve.

To use galvanism in the same disease place a large electrode, five to nine inches in diameter, connected with negative pole over the sacrum, a somewhat smaller one connected with positive pole firmly over one of the most painful points of the nerve, increase the current from zero until a feeling of warmth is produced, hold it so for a few minutes, decrease it gradually and treat each painful point in this way. The current will need to range from five to ten, fifteen, twenty or even more milliampéres, according to the effect.

The range of diseases in which electricity may be used to advantage by the general practitioner is very wide and new uses will suggest themselves to him as his experience increases. Where I have found it most useful is in functional nerve troubles, subacute inflammations, such as chronic rheumatism, in neuralgias, lumbago—and here it is particularly useful—also as a general tonic, and last but not least, in goiter, when used in appropriate cases.

In conclusion I would say that when we use electricity let us use it intelligently and with care, let us study it as a physical science, let us study it in its physiologic manifestations on the animal organism, but above all let us study the pathology of the diseased conditions we are to treat. Then if we will get good apparatus and use it with as much intelligence as we would give any drug, we will find electricity to be a most potent factor and a strong ally in our battle against disease.

But let us not make the mistake of considering electricity a cure-all, but ascribe to it its proper place, believing that a force that can propel cars, run the heaviest machinery, light a city or enable us to talk across miles of space, or break up molecules into their ultimate atoms, must have some effect, when properly used, upon the metabolism of the human organism.

CONSERVATIVE TREATMENT OF INTESTINAL OCCLUSION BY INTERNAL ELECTRICITY.

BY R. P. JOHNSON, M.D.
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In reviewing the different means of relief recommended and practised by American medical men for the cure of intestinal obstruction, the investigator is led to believe that what is regarded in some of the European medical centers as safe, successful, not interfering with the employment of the more radical procedure — laparotomy — is entirely ignored, or in fact, not even considered here. From a fair amount of investigation of the subject I am convinced that the American practitioner is neglecting to employ therapeutic means that have been satisfactory for years to many of the most eminent men of Europe.

The physician who is called to see a patient, whose most prominent symptom is one of non-movement of the bowels, may have a very obscure but serious case to contend with. Cathartics and enemas have been ineffectual, so it is a case of obstruction. What is to be done? A surgical operation may be the proper thing. If there is hernia, a stricture or lodgment of foreign body, a knot or a loop in any way strangulated, it will be the proper thing and should be done at once. But how are you to determine? Some say that a laparotomy must be performed, but the operation is too serious as a means of mere diagnosis. If the condition is the result of an intestinal concretion, an impaction of fecal matter, a paralysis, producing some dilation of the walls of the bowel and many other conditions that go to make up the pathology in these cases, laparotomy would be a failure. The last enumerated cases are not to be relieved by surgery. We have excellent authority for saying safer and better means are at hand.

I here quote from a recent article from the pen of Dr. J. Larat of Paris, France. Dr. Larat's experience and standing in the profession are sufficient guarantee. Dr. Larat says, in speaking of the good results of the electric injection as used in the hospitals of Paris: "In cases of intestinal obstruction let us see what the therapeutic results are. Dr Boudet of Paris, in statistics taken from 50 cases, reports the successful operation of 70 per cent." In speaking of himself, he says: "I have now applied the injections in 250 cases. I have obtained a clearing of the intestines in 101 cases. Thus my successes are less than those given by Dr. Boudet. However, they still remain satisfactory. All my cases have been seen by my colleagues, who called me in to assist their patients, and at least one-half of them are doctors of the hospitals. Thus my statistics have been well tried, and it would be easy for me to secure the testimony of my colleagues and masters. When called to see a case, and after having tried a purgative and an enema without any result, do not insist any longer but immediately administer the galvanic injection. In twenty-four hours it will be recognized successful, or not. In cases of failure, propose a surgical operation to the patient."

If the above statements are trustworthy, they leave no doubt as to the positively curative effects of electric injections on cases of obstinate constipation, where there is great torpor of the nerves supplying the muscular coat of the bowels. The condition of the semi-paralysis is fully proven by the great want of response to cathartics and also food that is inclined to keep the bowels in a soluble condition. Nothing has so decided an effect on nerves paralyzed from a functional condition as electricity and especially of the form of galvanism, where the muscular fibers are non-striated, as in the bowels and other hollow organs. Dr. Larat's conclusions are worthy the consideration of every physician and surgeon. In the advice which he gives in the management of these cases he certainly shows a fairness and professional dignity worthy of the eminent physician he is. He in no way tries to belittle the grand results obtained by surgery. To further substantiate what may be regarded as an unwarranted and unjust statement that the American practitioner is neglecting to employ therapeutic means that have been satisfactory for years to many of the most eminent men of Europe, I here append a list of sixteen printed medical documents that can be found in one library in Chicago on the obstruction of the bowels cured by electric injections. Of this list of sixteen medical articles, which are generally in the form of reports of different cases, only three are from American writers. For the collection of the above articles I am greatly indebted to Dr. Mangus Moreneus, who has charge of the department referring to electricity, in the Newberry Library. Dr. Larat of Paris, France, gives a list of printed reports on this subject by twenty-four different authors, not one of whom is American. Besides the forty articles above referred to, I have the names of title and authors of thirty other printed articles on intestinal obstruction and constipation treated successfully by internal electricity, not one of which are from American writers. They would make my article too tedious to give them all here.

It would appear that surgical interference is sometimes resorted to rather rashly. I here quote from the pen of Dr. Mathews, in his most excellent work on "Diseases of the Rectum." Dr. Mathews is president of the AMERICAN MEDICAL ASSOCIATION, and a recognized authority. In speaking of the obstruction by fecal matter, he says such accumulation has ended in the death of the patient. Obstruction caused by fecal matter in the cecum has been confounded time and again, with appendicitis, and operations have been done, looking to the removal of the appendix, which were unwarrantable, and right here begins the much discussed subject — whether these cases belong to the surgeon or the physician. Dr. John Ashhurst, editor of the International Encyclopedia of Surgery, in a recent article on "Intestinal Obstruction," says: "I very much fear that at the present day, the hasty resort to operative measures, encouraged by the much vaunted modern triumphs of abdominal surgery, is responsible for the loss of a good many lives which might, perhaps, be saved by more rational if less brilliant treatment."

From the statement I have quoted from Larat, it would appear to the unbiased mind that where the pathology is obscure, therapeutics in the form of internal electricity should be tried first. If this treatment will relieve the cases where surgery is not suitable—which are fully 50 per cent. of the whole—it in no way preclude the knife in surgical cases, certainly the mortality can be greatly reduced. The statistics of cures by surgery would be very much better if cases not indicating surgical assistance were treated as here advised. No fair-minded physician or surgeon is so enthusiastic in his own specialty as to

professional work where his efforts will be unsuccessful. I think you will find no other disease in which the per cent. of cures are so evenly balanced between the efforts of therapeutics as here described and surgery. A monopoly in either department of the science and art of medicine and surgery in these cases can not fail to greatly increase the rate of mortality, and when you consider that the use of electricity need not require more than twenty-four hours to give it a fair trial, it can not be objected to.

The electric enemas not only assist in removing the obstruction by inducing a normal peristaltic action, but impart tone to the vasomotor nerves which supply the non-striated muscular fibers forming the muscular layer of the intestines.

It is a well-established principle in electrotherapeutics that the active pole of the battery should be placed near the tissue to be treated as possible. What I mean by the active pole is the one in nearest proximity to the diseased tissue. Convinced that strict observance of this principle was important in order to have success, and having some cases of obstinate constipation to treat, about one year ago I had constructed a special rectal tube inclosing an electrode. The electrode is so constructed that it supports the fiber of the tube, thereby preventing its kinking or doubling, which enables the operator to pass it into and beyond the sigmoid flexure. In this way the colon can be thoroughly flushed, and by connecting the cord-tip of the battery with the binding-post of the positive electrode, and the sponge of the negative electrode over the abdomen, or some other part of the body one can administer a thorough and real electric bath to the mucous membrane of the colon. Peristaltic action is generally set up in from one to five minutes. Certainly no other therapeutic remedy is half so potent, with no danger nor pain.

As to the amount or intensity of current to be used. If the battery is not supplied with a milliampére-meter or galvanometer, it will be safe to rely on the sensibility of the patient. Commence at zero with either a galvanic or faradic current and slowly advance to the degree of considerable warmth with galvanic current. If you use the faradic current a greater degree of sensation from the current will be required. After the current is continued for a few minutes, turn back to zero and again slowly increase to the former intensity. If at this point of procedure the patient expresses a desire to go to stool, at once discontinue the treatment. If the desired results are not obtained repeat the treatment in from three to six hours.

As to the kind of electricity to be used, Dr. Larat of Paris, whom I have freely quoted in this article, says the galvanic current has the most decided effect on non-restricted muscular fibers, such as compose the muscular wall in the bowels, bladder and other hollow organs; nevertheless, in the list of printed articles and authors I have here mentioned, the faradic current has been the most generally used. As to the fluid to be injected: A 1 or 2 per cent. salt solution is more efficient than mere warm water, on account of more thoroughly dissolving the mucus covering the membrane, and also, of about doubling the strength of current of electricity imparted to the mucous membrane. In speaking of my own success with this form of treatment for the past year I will only say my expectations have been more than realized. The instruments that I have been using and that have been most satisfactory to several specialists can be found at the Hydro-Electric Instrument Co., Chicago.

If in the large list of authors I have referred to, only three are of our own country, does it not indicate that we are a little slow to investigate this very important matter? Can it be that omissions like this have anything to do with sending so many to European centers to complete their medical education? I do not assert that it is so, but suggest it for the reader's consideration. I would not refer to this so much at length if the remark, in substance, that the virtues of internal electricity in the treatment of intestinal obstruction and constipation have not as yet been fully demonstrated, had not been made to me many times by physicians in the last year.

Some who read this article may suppose it is from the pen of an electrotherapeutic enthusiast and one not having had experience in surgery. To disabuse the minds of such, I will say that when quite young I was an assistant-surgeon in one of the Ohio regiments in the War of the Rebellion, since which time I have had many years of experience in railroad and general surgical work and am by no means faint-hearted. I could not if I would, and would not if I could, cast a shadow over the grand achievements of American surgeons. In a humble way I am one among the many. But in the van for professional preferment, for which we are all striving, let us not lose sight of the fact that he stands nearest head who does the greatest good to the afflicted, even though it be with the simplest means.

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FORMATIVE NUTRITION.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY H. W. SCAIFE, M.D.

CHICAGO, ILL.

As defined by Webster, nutrition is an "act or process of promoting the growth, or repairing the waste, of animal bodies," from which it appears there are two divisions of nutrition. The first is a "*process of promoting the growth.*" And it is to a consideration of this that this paper is devoted, and hence it is called "Formative Nutrition."

"Young men for war and old men for counsel," indicates the physiologic superiority in the face of

disease and death which formative nutrition gives to the young. It is then at its best; its capacity for repairing the waste has attained its maximum, and then the frame ceases to be augmented.

On an inquiry into the process of forming and building animal tissue, the first point of importance is to find the seat of nutrition, which is easily determined by reducing tissue to its simplest factor; that we find to be the cell, and the cell, according to classic plan, consists of envelope, protoplasm and nucleus. Each of these has its part to perform. That of the nucleus is unimportant and can be dispensed with in some instances; the protoplasm seeks out and chooses the food; the nucleus, devoid of mobility, presides over the building-up process. The nucleus will replace any part of the cell that has been removed by the knife, and hence we have only to infer that the process of formation is effected by the same agent as that of reformation, and the conclusion is: the seat of formative nutrition is the cell nucleus. Binet says: "The nucleus is the essential factor of the plasmic vitality," and "if, to use an old comparison of Aristotle, we compare the protoplasm to the clay, we must compare the nucleus to the potter that has fashioned it." From which simile an inference is to be drawn which may affect the question as to which parent the child should most resemble. The mother supplies most of the material, the vitelline protoplasm, but this exerts no formative influence; this is food, while the formative impetus is given by the nucleus. By the rapid segmentation of the cell, in which the nucleus always divides first, the being is increased in size and takes on form, it augments in substance, cell arranging itself with the other cells, and appropriating for each organ its separate function.

Another phrase, "As the twig is bent, so the tree inclines," indicates the importance of getting a good start. It emphasizes the responsibility of the physician, whose duty is as the husbandman's, in whose care so many young trees are placed for cultivation. To his judgment the future welfare of many infants is committed. He is the adviser of the young parents as regards tending and feeding their infant offspring, and often is forced on him a dreamy speculation as to the method nature employs to make a normal figure or one abnormal, a plain man, a vigorous giant or a puny dwarf. On either hand that which is abnormal may be considered the cause of a disease, depending on the function of some obscure organ, as the pineal gland. But apart from causes, he knows nutrition is the chief thing for him to understand, to enable him to advise wisely what food to give to form muscle, bone, nerve or brain, according as to what is needed when his advice is asked. He thus is compelled to think at times of the deep secret nature has hidden in formation of animal figures.

In the first place we observe that this process is rhythmic, as all other things in nature, and that we have not to expect the same results at different epochs, but varied success. At one time one kind of food is needed, at another, another kind, and as the seasons and circumstances vary, the food should vary accordingly. The ovum has its time to mature, the embryo its time to quicken, the fetus its time to be born. So the infant has its time to grow chubby and its time to grow lank. As a plant, the child will increase in height between April and August, and in weight between August and December. To learn more of these variations, and to explain cause of the changes as we do the phases of the moon, or the ebb and flow of tide, is desirable, to take them into account in studying what to do for individual cases is necessary. But as yet, food is the only thing we can understand and control to any great extent, and is therefore the all-important subject to consider in regard to nutrition. It controls the destiny of every child born, and determines whether they shall be great or small. As is said fishes in a small fish-pond are small in size, but if you enlarge the size of the pond the fish grow larger, which shows that size is often determined by the quantity and quality of food which is available. The change of food from the solid substance to the nutrient fluids, and the internal secretions by which this change is accomplished, are fairly well understood. Its reduction to chyme and chyle, its osmosis and final arrival and reception into the blood-vessels is told us in every physiology. And now the secretions of the ductless glands and their effect on nutrition is being studied by specialists, and many and interesting discoveries are being made. They are found to be necessary to health, their several defects have been found to bear certain relations to disease of special malnutrition, as, for instance, the relation of defect in the pineal gland to that disease of acromegaly. But when we arrive at the point where assimilation occurs; when we come to the functional physiology of the cell, our task becomes difficult and largely partakes of the character of guesses. The nutrient fluid of the blood passes through the cell. If the cell be one of the salivary glands it comes out ptyalin, if it be one of the peptic glands, pepsin. If it be some other cell it may come out as a white or red corpuscle of the blood, and be ready for building up the organism by growth, or for repairing the waste when growth has ceased.

The process beginning with the act of eating, and going on up to assimilation, is called digestion, and as I have said, is fairly well understood. That beginning with assimilation and ending in excretion is called metabolism. It embraces, 1, pabulum; 2, substance actually in contact with life; and 3, excretion. This process is again divided into two parts, the first half, in which the cell substance, the cytoplasm, is coming in contact with the living principle and is being builded into living substance, is called anabolism; and the second part, belonging to excretion, the breaking-down process, is called katabolism. That is the process evolving animal heat. Now, when anabolism is greater than katabolism, we have growth, which takes place in two ways, either by multiplication of cells or by individual enlargement. Minot has pointed out the difference between a growing and a matured cell. He says that "the proportion of cytoplasm to the nucleus" was less in the latter. So the cell arrives at maturity when the matter of the cell and its nucleus bear a certain proportion to each other in size. And if the time taken for this be constant, the duration of its existence can be deduced by aid of another proposition.

The normal duration of life of animals is, some think, five times the time it takes that animal to mature. Observation, however, seems to have shown that some animals of the fish species grow as long as they live. Geology shows us animals in earliest ages of enormous dimensions. Mythology tells us of serpents that would measure one hundred feet. We read of the remarkable ages of the patriarchs, and sometimes also of their enormous size. In the plant kin

dom we still meet with remarkable longevity. The common bracken fern never dies of old age. The oak tree may live a thousand years. Nature is in no hurry to separate life from organism, but leaves it in its environment till a purpose in evolution has been accomplished for it. It begins with a growing point in a unit or cell, the arca germinativa or nucleus. This commences to grow. From it radiating lines are sent out through the cryptoplast by which every part of the cell is reached. This in animal life is regarded as the basis of the nervous system. It grows till we get a spinal system, a sympathetic system and a brain, each exerting continuously, severally and combined, an influence on nutrition as at their inception. "It may be," says Halliburton, "that all nerves have power of transmitting trophic impulses." He means the nerves are the builders of the body, and what is behind them is food.

Professor Holt says: "In building up the cell the proteids are first in importance, the carbohydrates second, and the fats the third." And under the head of the mineral salts he says "they are of greater importance in infancy than in later life, because we find that they are stored up in the system at that time more than later on." Is that all? In Parkes' Hygiene we learn something more on mineral salts. They are food for vegetables. The lowest forms of life will not grow without earthy phosphates. "The growth of wheat is more quickly checked," he says, "by the absence of phosphoric acid than any other constituent from the soil." But the mineral salts which are necessary for plants are changed when incorporated in plant substance for food for animals. It was said so when organic chemistry began to be studied, and though chemistry has had many triumphs, as for instance the manufacture of uric acid, it is almost certain that minerals that have not been prepared for our use by being incorporated in vegetable organisms are not food. Therefore it is a misnomer to call those that have been prepared as proper foods mineral salts, or at least it is misleading, unless exception is made of the chlorid of sodium, of which Foster, p. 840, says "200 grams a day are essential for the discharge of metabolic function." In which instance we may regard it as a necessary environment for the living principle, not a pabulum. It assists in the elimination of excreta which the life principle is constantly throwing back into the blood, and which, by the help of sodium chlorid, can be excreted from venous blood through skin, kidneys and lungs. The other salts, and chiefly those of the phosphates and acetates, are given to us for food through the vegetable kingdom, and their absence produces the highest form of acute malnutrition, called scurvy. It is well we emphasize the importance of these salts to the young, but not well to emphasize the adjective mineral. Neither minerals nor mineral waters can be recommended for infants or for the young. The salts they need are those furnished by vegetables, and in point of importance should stand first on the list as tissue-builders in formative nutrition. Protoplasm is the material used in construction of the body; the carbon, the nitrogen and the hydrogen are the brick, the wood and iron of protoplasm. Oxygen is the workman's tool, the hammer and saw, while the builder, the force regulator, is phosphorus.

In plant elevation the process of nutrition is synthetic, accomplished by sunlight through the agency of chlorophyl. By its action the energy of the sun's rays is stored up and becomes potential. Nutrition in the animal requires a further "very remarkable psychologic process," and constitutes a method by which this potential energy becomes active and is used up or expended, so the animal receives its energy as it should do its substance, from the plant directly, or indirectly through the body of some other animal. Sunlight may be absent from its growth, though it can not be absent from plant life. The glowworm will give up the light absorbed by day in the darkest night; so may sunlight be faintly replaced in animal growth, when building in darkness, by the phosphorescent element derived from plants.

But with writers on biology it is usual to acknowledge that we do not know how a living substance builds itself up. And that means we do not know the process of formative nutrition. A writer on microorganisms says that "simple cellular psychology is a conception of the mind, rather than a study based on observed facts." Now we have viewed a few facts on which we may try to base our conception of cellular psychology. The fact of long-continued life and gigantic forms in early eocene ages gives us an association of small minds in big bodies. And in giants we have now we do not see higher development of mind attending larger bodies. We expect to find it otherwise, as if the body can be developed at the expense of impoverishing the brain. Consequently the alternative may be true, that the body can be stunted by abnormal development of brain and nervous system. If, then, formative nutrition be arrested, it may be either debility arising on the one hand from improper food, or on the other hand from an insufficient supply. Or it may result from too much mental exercise, too many studies, or too many cares of life. If it be the former, improper or insufficient food, the result is anemia, marasmus, scorbutus or rickets; or if it be the latter, we have precocity. Suppose we take it to be the former condition, then we must remedy conditions.

In house plants we sometimes see luxuriant growth and yet no flowers. The anxious owner knows not what to do with her plants. Accidentally she sees a "plant-food" advertised, buys it and gives it to the soil—marvelous change! The plant ceases growing and begins blooming. That plant-food was perhaps nitrogen in a form that could be assimilated by the plant. Hence the sudden change. Many children are like house plants, in need of a particular change of food. They need phosphorus. Their cartilages must be changed to bone, the phosphates of sodium into the phosphates of calcium, and the phosphates in the food are needed to effect this. The anxious parent inquires, Why is it that my child does not grow? He fills it with medicines that have the best reputation for remedying these troubles, and still no change will come—no improvements. But pure air and poor living would get it, if by poor living we mean brown bread, skimmed milk, peas, cabbage, pork and beans, oatmeal, and less white bread and butter, less tea and coffee, less medicine and fewer school studies.

Now, as to the expression of opinion touching the importance of phosphorus in formative nutrition, we find it supported in the standard works of physiology. Of milk, the ideal food for infants, M. Foster says, p. 613: "The salts in milk consist of phosphates of whose function in the process of curdling we speak elsewhere. The sulphates appear to be

absent. And, beside the phosphorus in the actual form of phosphates, milk contains further considerable quantity of phosphorus in the proteids and in nuclein." To the child who is not fed on milk, with so many factors necessary in nutrient-food, one may fail to be supplied by its artificial product. Hence, we may find that a diet prescribed with scientific skill, will fail sometimes, when success attends the other regulation of diet by an untutored mind. One mother says "my baby did well on Eagle Brand;" another, "that brand was no good for mine." One prefers Horlick's malted milk; another, Mellins'; some try them all without achieving any success. Why? Because the ingredient phosphorus is not given in sufficient quantity, while in the instances where prepared food succeeded, it may have been supplied from an independent source, as for instance, by the addition of good cow's milk. For M. Foster says, p. 630, "from a biological point of view, the phosphorus is no less important than carbon or nitrogen."

Manufacturers do not put up a food for the market devoid of carbon or nitrogen; these are blended in exact proportions, but no account is taken of the salts. One says, when cow's milk is properly diluted the salts may be dismissed from separate consideration; and yet the same will acknowledge that an infant may thrive on one woman's milk and suffer immediately from indigestion if put on another woman. "It has sometimes been necessary," he says, "to try a dozen." "It is possible," he says, "to vary the percentage of fat, sugar and proteids in milk to almost any degree desired, and to do this with very great accuracy." "At present," the same author says, "a separate modification of inorganic salts is not attempted." Though this style of preparing food may be of great value, when other important things are not overlooked, it is nothing to be relied on when the salts are regarded as being impossible to regulate. It only teaches the parents and physicians indolent reliance on manufactured articles in false security, instead of studying and practising the proper cooking of natural foods. And we need not believe that accuracy of proportion of carbon and nitrogen a positive necessity; for what was the anus given us if not for the elimination of unproportioned elements? Better leave it with a burden of work to do, rather than omit a small article of diet that is necessary for the proper performance of assimilation.

The numerous prepared foods for infants may all of them be useful for a change, though they may not contain the salts in the proper kind and quantities, for the carbon and nitrogen which they do contain. But life and health can not long be supported by them exclusively, and when the child is healthy we never think of using them.

In general, it is best in directing the diet of children to discard long courses of medicine, or drugs and prepared foods, and to try and select their diet from such foods and condiments as are generally found on the table, for we are then liable to get all those elements of food that constitute the body. Then we shall stand a good chance of succeeding in improving malnutrition of any description, and of proving the benefit of our profession to a needing part of the community.

Physicians' Book-keeping.—The courts in Paris recently decided a case on the principle that a physician's books were sufficient evidence of his claim, unless there was manifest exaggeration.

SOME THOUGHTS ON THE CARE OF INFANTS AND CHILDREN.

Presented to the Section on Diseases of Children, at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

BY J. A. WORK, M.D.
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Of all the young of God's vast creation of animated nature, none are so helpless as the *newborn babe*. The young of the lower order of animals can all early help themselves to their furnished food; not so with the human species; thus the demand for especial tender care; and how generously the mothers with natural affections bestow their aid and sympathy to the little weakling. Though perfect in its anatomic construction, yet as soon as breath enters the heretofore functionless lungs, the whole animal machinery of many members moves into new activity; and we can now declare, surely, that a new life exists. The first care that the infant's helpless nature demands is at the hands of the accoucheur and nurse, the responsibility largely resting on the former. The proper start in life, as in every other great undertaking, is an important factor to success.

It is fitly asserted, from a moral standpoint, that the beginning of the child's moral culture should precede its birth at least two generations; no less should be required of its physical training. Heredity should receive due consideration as to offspring. The very tender, pliable brain cells become arranged very early in life, in accord with its environments; habits of system, whether good or bad, become soon fixed and it becomes extremely difficult to change them. How deplorable to find a mother ignorant of and not competent to understand the first principles governing the physical interests of her offspring. This condition of mother, together with a careless or perchance impractical, inexperienced medical or physical adviser and nurse, presents anything but a flattering future for the helpless little creature of circumstances; however, we will take a more hopeful view and assume that all parties concerned in the well-being of the infant are adequate for the occasion.

With a mother ordinarily endowed, physically, morally and mentally, an accoucheur of good judgment, ever ready for emergencies, if any should arise, a nurse capable of obedience (at least) to all the details given her by her superior, the doctor; we are in a proper condition to safely assist the little personage to his new and unexplored realm, suited to his wonderful possibilities. However, not a few infants are injured for life (and a miserable life, too) just at the last stage of the labor that gives them an existence. Sometimes this commiserable event is unavoidable; I refer first to the effect on the cranial viscera due to the employment of forceps, which injury of the brain the child scarcely, if ever, recovers from; second, the cervical portion of the spinal cord is often injured, or at least sometimes, by severe traction by the head and twisting of the neck, with or without instruments, when the shoulders are difficult of deliverance; this occurring usually after the head is delivered, and can be avoided by the accoucheur hooking his index finger into the axilla of the child, and thus employ traction which does *not* strain or injure the spinal cord.

All things being equal, the first care of the infant's body is to cleanse the surface of all extraneous or

precipitate substances by the employment of some adeaginous agent, rich in glycerin. Fresh aseptic lard is the most efficient for this purpose of any substance I have yet employed. After the surface has been thoroughly anointed and the precipitate thus dissolved, then wipe with a soft cloth with as little friction as possible, and by not employing any kind of soap, the normal oil of the skin is preserved, and the above procedure adds to, rather than takes from, the normal condition of the surface, and renders it less liable to chafe.

The umbilical cord should be dressed in surgeon's aseptic cotton, and thus treated, as a rule it need not be disturbed, neither will it disturb, until it sloughs.

I do not recommend washing the infant's body oftener than once in two or three days, but during the interim of washings, gentle friction of surface of body with a soft cloth or hand, is good treatment. In washing, soft water should be employed.

Bands around the body should not be too tight, but should be snug enough to support the walls of the abdomen in case of distention. Clothing should be of the softest texture, and its conducting or non-conducting properties should be according to the conditions of the atmosphere. If mothers were taught and impressed with the importance of changing their children's clothing with the change of the atmosphere, I daresay many precious lives might be saved to the home and society, and much grief prevented. The child's clothing should be of equal warmth—that is, if possible, the surface temperature of all parts of the body should be the same and so maintained, and it is important to have clothing so constructed as to have equal pressure. This latter proposition should be also required of grown-up babies, and upon equal pressure, or rather no pressure, depends equal circulation and warmth, to a greater or less degree.

Face and hands should early be habituated to the atmosphere, not forgetting the self-evident fact that the infant is a new and separate being, and must do its own breathing, and should have a living chance to do it. The atmosphere should be of the purest quality, and not from under the bedcovering of the mother. Temperature of the nursery should be from 85 to 95 degrees at first, and gradually lowered to 75 degrees; however, several days should elapse before reaching the lower temperature. Each individual case demands its own peculiar care, and the successful accoucheur must be an efficient nurse, or at least he must be competent to instruct his nurse efficiently, according to the needs of each particular case. The nurse is the physician's agent, or orderly, and should be so instructed as to readily know what constitutes a normal anatomic and physiologic babe, so that she may instantly discern any deviation from the standard; thus the need of trained and educated nurses in general obstetric and nursery practice.

The first few days of the infant's existence will reveal any anatomic or physiologic defect or weakness, and it is within the province of the nurse to notice any defect which has escaped the casual and hurried scanning of the busy attendant physician, and she should report at first opportunity. An effort should be made early in the child's life to correct defects, whether they be structural or functional, with a reasonable hope of success in a majority of cases.

One of the most irrational procedures in child culture is to neglect the physical while developing the mental; in fact, a proper development of being requires a strict observance of all the immutable laws governing development or evolution. It is a sad mistake to withhold any of the vital stimuli from the *feeble*, whether it be of either body or mind. Pure outdoor air for the feeble infant or child, even at an expense of warmer clothing than is required for in-doors, is a wise investment, and will in time count on the credit side by bringing color to the cheeks and vigor to the priorly lax muscles, especially where the child is properly nourished. And I will note right here, that this department of the nursery is attended with more disaster than any other. There is a great diversity of toleration of food and powers of digestion and assimilation. This being true, it requires greater wisdom than is usually manifested to manage successfully the average child's larder.

If mothers can know the first symptoms of indigestion and take warning, know what to do and do it, if their sympathy did not overcome their judgment, much trouble could be averted. We must institute training schools for mothers, as we have for nurses, or else compel doctors to take time to instruct the young mothers, with authority to enforce obedience to the instructions. The deleterious results arising from the mistakes in the feeding of children are greater than in any other department pertaining to their physical culture. All things being equal, the mother's milk is the best suited to properly nourish the infant. Too often infants are weaned from their natural food too soon, without a reasonable cause, and substitute foods employed suddenly are dangerous. The proper and rational procedure in weaning a child, as a rule, is to wait until we notice an insufficiency of the natural food, and then *gradually* add the artificial, commencing with the smallest possible addition and increasing until we reach a sufficiency. The child will usually wean itself. As a rule, the Creator has wisely and abundantly provided nourishment for the infant; and substitution is unwarranted and is next to criminal. Next to the mother's milk, at our command, is fresh cow milk, if carefully and wisely administered.

Some contend that cow's milk should be sterilized. If it is not properly collected and contained, it is well to sterilize it, but if milked into sterilized containers and used soon after, there is no more necessity of going through the process of sterilization than there is to sterilize the mother's milk. In either case the *fresh milk* is sufficiently sterile, if the source is healthy.

DISCUSSION.

Dr. WILLIAM C. HOLLOPETER, Philadelphia—First I would emphasize the fact that the first cleansing should be done with oil. An infant should not have water applied before several days after delivery. Several years ago I had occasion to study this question particularly in reference to premature infants. I had two patients with deformed pelves, and I have delivered them each of three infants, one at six months and twenty-three days. The care of that infant consisted simply in keeping it in an equitable temperature with oil and not touching it with water, except about the nates with a cloth wrung out of hot water. Such an infant may have its death insured by improper treatment. Many infants die in the winter season by gradual cooling of the extremities, especially after being washed with water. I had a case two or three years ago in which I am sure the infant died from that sort of exposure, although it was in a well-to-do family in the country. On the second or third day after its birth, at the beginning of the seventh month, it was being nursed by a trained nurse before a warm fire, wrapped up in a great wad of cotton on a cold bleak day. The cold draughts of air from the windows and doors going toward the

fire, the side of the child from the fire was thoroughly chilled while the other side was warm. I was called out to bring my incubator on the third day. After the incubator was raised to a temperature of 85 degrees, on unwrapping the baby I found it cold and stiff. While the side toward the fire was red, the side away from the fire was cold and blue. Many infants born at full term after being washed with water are then put in a cradle, and especially in houses heated with a grate, we will get a chill of the side away from the fire, and bronchial trouble and other affections will arise which will cause its death. If the day is cold and chilly, I intend to insist upon keeping the infants in a box, or any way so they are comfortable and will not chill.

Dr. MARY E. GREEN—Some one has said that two-thirds of the diseases of after life are due to the malnutrition of the first two weeks of infancy. I think that probably is largely true. One man has made the statement that nine-tenths of the children are fat starved. In view of all these statements that have come to us as practitioners, it behooves us to consider what the diet whould be. The Doctor very correctly said that the mothers should be educated along this line. I have so often noticed the patent foods recommended during the first two months of life. I believe that it is wrong to give the child any starchy food for the first six months of its life at least. I believe the child's food then should be cream, or the upper part of the milk, with water one-half. I like what the Doctor said about the sterilization of milk. No child can remain healthy for a long time upon sterilized food. There is a lacking principle, so the child does not thrive on sterilized food. I think sterilization is unnecessary if perfect cleanliness is carried on in the preparation of the food. Some experiments have been carried on in giving children modified milk. But in all those laboratories absolute cleanliness is observed, and if as much cleanliness is practiced in preparing the usual food for infants, as good results will be obtained. All the attendants are obliged to wear duck suits, and perfect cleanliness is observed. The question of food is a very serious one up to the age of school life.

Dr. E. STUVER, Rawlins, Wyo.—I believe it was Holmes who once remarked that the education of a child ought to begin about two hundred years before it was born. The child ought to have a strong healthy mother, a mother who can provide an abundant supply of the nutriment that nature has intended the child should have during the first year of its life. I believe one of the most important points in securing good healthy children is to pay particular attention to the health of the child's mother; and after the child is born, if the mother has a disclination to nurse it, try to show her that is one of her duties as a mother to assume that responsibility. Furthermore, I believe most of the patent foods do not supply what they should supply for the infant. Take for instance our condensed milks. A child may grow plump and apparently strong on condensed milk, but it is much in the same condition as the old beer drinker. Let him contract a serious disease and he has four or five times as many chances to die as a person in good health. The flabby, condensed-milk baby stands a good many more chances to die than the baby that has been fed on good natural mother's milk.

Dr. BROWN of Illinois—The problem which I think especially interests practitioners in regard to feeding infants has occurred in the smaller towns where we are without milk laboratories and where it is absolutely impossible to have any form of modified milk. We are called into houses where children are dying of marasmus and malnutrition, where there is no ice in the house in the hottest summer months, where the milk is obtained from a milkman, carried several miles in hot cans on hot days before it reaches its destination. To make a modified milk out of that is entirely out of the question. I am in the habit of giving my better patients a formula for making a modified milk. But in the poor and ignorant classes it is impossible to give any instructions they can follow. We have resort either to the patent foods or condensed milk. In choosing one of the two evils I choose condensed milk, because it the only way to get a food in the smaller towns. I am in habit of adding cream, because even if you get cream fr milk in an unhealthy condition, carried around in tin c three or four hours in the cities, the cream is less likely to infected.

Dr. MARY E. GREEN—I was going to make a remark ab condensed milk. There are condensed milks and condens milks. Some of those put up with sugar I think are objectio able, but there are condensed milks put up without sugar, and those there is little objection. I have seen children brought on such condensed milk and they have done well. Recently attended the health exposition in New York. Three hundr cows were presented by Dr. Brush. It was an exhibition the care of the cows and the milk. Dr. Brush furnishes t milk at 14 cents a quart. It is not sterilized or modified in a way. The only thing about the dairy is absolute cleanlines That is the one thing I think we should advocate more th anything else. Not long since I attended a dairy conventi and I heard a dairyman make the statement that he did n believe there were any dairymen furnishing milk to the cities the summer who did not use some antiseptic, especially borac acid or some form of borax. If that is so, I think it is som thing physicians should know and we should fight against i Whenever antiseptics are used they render the milk unfit f children. We want milk from a herd of cows rather than fr one cow, but let it be clean.

Dr. R. B. GILBERT, Louisville, Ky.—The consideration artificial food is secondary. If the child can not have i mother's milk, then we have to use something else. One thin is the condition of the mother furnishing the food for th infant. There are many times her milk is injurious. In great many samples of milk this will be found to be true, you examine it from day to day, and the doctor should do s continuously. The same thing may occur in the cow that fur nishes the milk. I am glad to hear the statement that th milk should be taken from the whole herd rather than fro any one cow. Not only that, but the food the mother eats ha much to do. Food that contains pickles or anything of tha kind, or food such as onions, will affect the milk. Menta anxiety will often modify the milk for several hours so th infant can not digest it. I do not know what the process is, bu there is an excess of the casein and a diminishing of the pep tones in a fit of anger or anxiety of any kind, or grief, as fro a misfortune, for instance. It goes without saying that alco holic stimulants all modify the milk. One case in particula comes to mind, of a child 6 months of age, that died whil under my care. The mother went over in another part of th city to do a day's washing. On her return home she smoke an old strong pipe more than two-thirds of the distance home. Immediately after nursing the infant became limp, decidedly feeble, and I could hardly understand why it was so. It looked like it had been poisoned. On inquiry I found she had used two or three pipefuls of strong tobacco in smoking, and I attributed the death of the child to that. In reviewing the whole subject, you can not find any food in my estimation, that is equal in any respect to the mother's milk.

COLPOPERINEORRHAPHY AND THE STRUCTURES INVOLVED.

DEDICATED TO DR. THOMAS ADDIS EMMET AND MR. LAWSON TAIT IN RECOGNITION OF THEIR LABORS IN THE SURGERY OF THE PERINEUM.

BY BYRON ROBINSON, B.S., M.D.
CHICAGO, ILL.

Concluded from page 925.

Relaxed vaginal outlet, concealed lacerations or deep musculo-fascial tears of the pelvic floor, can not be too forcibly brought to the notice of the physician as an important diagnostic indication for colpoperineorrhaphy. Kelly calls such, concealed relaxation.

This is a condition of loose, gaping vulva, compared to the mouth of a bag without its puckering-string by Dr. Emmet. If the patient lie on the back the fork of the buttocks looks flattened, the anus appears everted, and one may observe the vaginal mucosa bulging out above or below. The condition is frequently described as rectocele or cystocele, or both. Others call it perineal laceration. Some will write that it can not be perineal laceration, because the skin perineum is longer than the normal one. The skin perineum is longer than normal because, when it was stretched at labor, it never returned to normal (subinvolution). Occasionally one can introduce the four fingers of the hand and put the long relaxed perineum on a stretch. It is in these long, lax skin perinei that physicians disagree as to conditions, the one asserting that the perineum is plenty large enough and does not require an operation, while the other rightly asserts that the perineum is but a small part of the support of the sexual organs. The fact is, the whole vagina and sphincter apparatus has become deficient, the vulva pouts, the anus everts, and the floor of the pelvis flattens out. If the patient is requested to bear down, the anterior and posterior vaginal walls will roll outward, often to an astonishing degree. By the act of straining, the cervix can be felt descending. The patient has utero-ptosis. The sacro-pubic hernia is more marked if one examines the patient in the standing position. By careful inspection and palpation while the patient lies on the back, one may feel the retracted cicatricial stump ends of the lacerated levator ani muscle, and by irritating the little cicatricial elevated or depressed stumps we can see the contractions and relaxations in them. Sometimes the perineum or lower posterior vaginal wall is so relaxed that it is large enough to close up the vulva like a valve. The horseshoe loop of the levator ani, which extends from one pubic ramus to the other, presents no more the resisting, broad, elastic loop felt in the virgin, but in the middle one feels an irregular sharp edge of narrow dimensions. Also the loops of the levator are more displaced to the side of the vagina. Though the patient can generally control stool, yet the vigorous elasticity of the muscular loop is definitely impaired. With the patient on the back and the two index fingers in the vagina, one can quickly test the degree of deficiency of the sphincter vaginal apparatus by pressing downward and backward. The vulva may pout with perineal skin intact, and the same may be said of the rectum. The fascia and levator ani may be quite defective on one side and intact on the other side. In very sensitive women, made worse by long-continued irritation, the examination is occasionally delusive, because reflex irritation puts parts on a tension.

Fig. 46.—Advanced stage of the flap-splitting operation. L, V, anterior vaginal flap held up by forceps; the posterior rectal flap is held backward by forceps; the most posterior suture is placed along the margin of the torn rectum; other sutures are being introduced by being threaded in the median line and drawn out. Note that the needles do not penetrate the skin or mucosa.

We may classify the operations for colpoperineorrhaphy into three general divisions, viz.: posterior median colpoperineorrhaphy, posterior bilateral colpoperineorrhaphy, and the posterior flap colpoperineorrhaphy. Some of the principal originators and advocates of posterior median colpoperineorrhaphy were Dieffenbach, Langenbeck, Baker-Brown, Osiander,

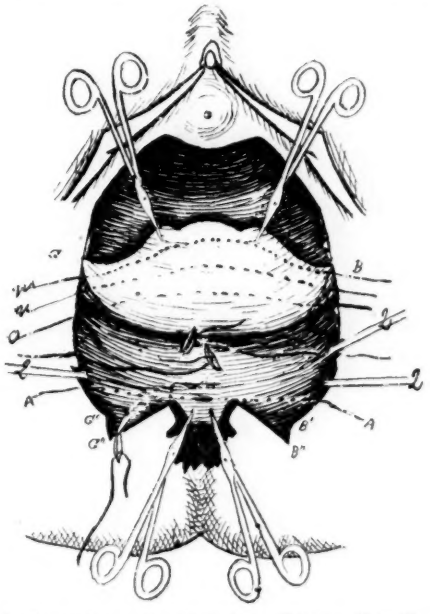

Fig. 47.—Another stage of flap forming. Observe that the most posterior suture is being introduced by the needle passing from one side of the denuded wound to the other, because the space is short, but the denuded surface under the flap is generally so wide that it is most practical to pass the handled needle from the lateral margin of the wound to the median line, where the needle is allowed to emerge and become threaded. Thus the sutures are passed through half of the wound at one time.

Simon, Hegar, Hildebrandt, Jobert, DeLambelle, Le Fort, Schroeder, Werth and Reamy.

The chief originators and promoters of bilateral colpoperineorrhaphy are Emmet, Staude, Freund, Martin, Bischoff, Goodell and Kelly. Some of the pioneer originators and advocates of the posterior flap colpoperineorrhaphy were Langenbeck, Duncan, Tait, Jenks, Voss, Simpson, Marcy, Colles, Sänger.

Whatever the apparent differences of the above three classes of procedure, all the advocates practically agree that definite denudation (flap or otherwise), exact approximation of wound surfaces, and deep sutures (without tension), based on anatomic lesions, are the prerequisites of success. Methods and modifications are not so important as attention to anatomic and surgical principles. The physiology of structure being disturbed by an overstretched peri-

neum or elongated supports (enteroptosis), it must be restored by reproducing as near as possible anatomic integrity.

The relaxed tissue must be corrected with deep sutures and dissection; the blood-vessels must have a definite supporting bed in which to functionate; the peripheral nerves must be protected against continued repeated trauma, and the organs must assume a normal position, all of which belongs to the domain of colpoperineorrhaphy. The genius of Emmet established the utility of surgical procedure in the vaginal sulci. The grand operations of Bischoff sparing the posterior vaginal column (or median vaginal surface) foreshadowed and aided Emmet, as well as the scholarly labors of Schatz on the pelvic floor. As a pupil of A. Martin in 1884, I saw the contemporaneous and independent development of Emmet's operations in the vaginal sulci, in the hands of the most skilled gynecologic surgeons of Germany.

It may be remembered that the Emmet and Tait operations are alike valuable in operations for relaxed vaginal outlet, with the advantage in the Tait operation of a flap to protect the wound. The reason Emmet's operation is about of equal value is that healing in the vaginal sulci is almost certain, hence but little danger of loss of valuable tissue by non-healing. Nothing is gained by denuding an area of vagina over retaining that same area intact, for it will contract to its original size shortly after the tension which produced it is removed.

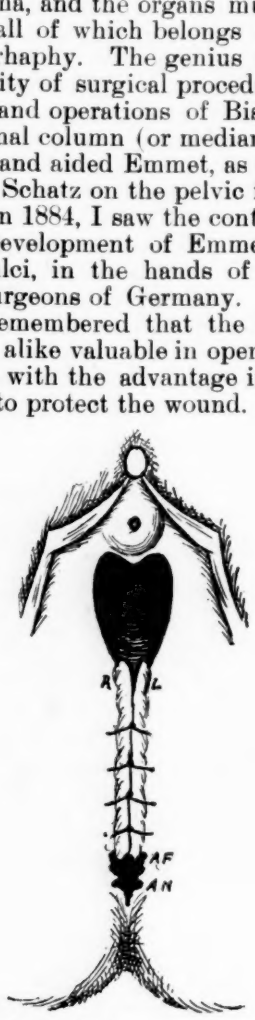

Fig. 48.—Finished operation in a case of complete laceration. R, L, anterior end, and A, F, posterior end of newly-built perineal raphe; A, N, ossus ani is a little patent.

The rational symptoms resulting from lacerations requiring colpoperineorrhaphy are very numerous and varied, but they follow a logical sequence. In general the chain of symptoms is as follows: A local point of irritation—an infection atrium; reflex irritation which unbalances the other viscera (abdominal and thoracic). The irritation, from a focal point, travels up the hypogastric plexus, the ovarian plexus and the lateral chain of sympathetic ganglia to the abdominal brain and thoracic plexus, which aids in disturbing the visceral rhythm. Anatomic facts must be inspected. We find on each side of the uterus a large ganglion, a massive collection of nerve-cells which has been termed the cervico-uterine ganglion. We may call it the pelvic brain. An enormous mass of nerve-cells—the abdominal brain—is found at the root of the celiac axis, just behind the stomach. Three great ganglionic masses of nerve-cells are found in the neck (superior, inferior and middle cervical ganglia), and a vast, intricate network of nerves in the heart—Wrisberg's plexus. Each of these large ganglionic nerve masses is in intimate and close communication with the genital organs. Many strands of nerves connect each ganglion with the pelvic viscera.

It is the numerous nerve strands which play the important rôle, because many strands, tracts, will carry many messages, and a few ganglion cells can take care of innumerable peripheral reports. A few ganglion cells will receive and dispose of many messages from many lines. Now the ganglion cells—the thoracic, abdominal and pelvic brains—assume a certain control over the rhythm of their respective viscera. Hence the viscus which is the most intimately connected to those three brains by many nerve strands will exercise significant power over the rhythm of the organs. One of the chief functions of a viscus is rhythm. If this be disturbed the organ becomes defective and fails in its final object.

Let it be remembered that the irritation from a diseased organ is emitted at all times, without regard to physiologic rhythm by which the organ accomplishes its mode of life. The occasion of rhythm is the natural stimulus of an organ, as food for the digestive tract, air for the lungs, blood on the endocardium, urine in the urinary tract, a fetus in the uterus, fluids in the Fallopian tubes, and food material in the liver, carried to it by the portal vein. If we follow a diseased message emitted from the pathologic genitals up to the abdominal brain over the lateral chain—the hypogastric ovarian plexus—where it is reorganized and emitted to the digestive tract, we may observe the following disturbances: Excessive secretion in the digestive tract; deficient secretion; disproportionate secretion. Excessive secretion may induce diarrhea; deficient secretion, constipation; and disproportionate secretion may produce fermentation (bloating); the continuation of such reflex factors institutes indigestion. The reflex irritation, passing from the diseased genitals to the abdominal brain, is reorganized and transmitted to the liver over the hepatic plexus. This pathologic irritation produces excessive, dispropor-

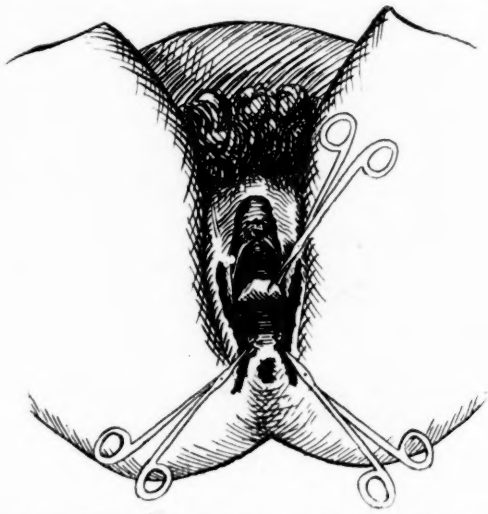

Fig. 49.—(Author.) Method of forming the flaps with a non-complete laceration, with anterior and posterior "cuts" and vaginal flap.

tionate or deficient secretion in the liver. The liver secretes bile, glycogen and urea. It has a rhythm, just as the heart or lungs.

The transmission of pathologic irritation—reflex irritation—to the liver unbalances its rhythm and disturbs its secretion. If the rhythm of any organ be disturbed its function will soon become defective. For example, the rhythm of the small intestines is governed by the superior mesenteric ganglion, which induces a rhythm four to six times daily, according to food indigestion. Improper foods, disturbing the regular rhythm, soon induce indigestion. The descending colon, sigmoid and rectum (the fecal reservoir) is controlled by the inferior mesenteric ganglion, which makes a daily rhythm. The superior mesenteric ganglion has a four- to six-hour rhythm, while the inferior mesenteric ganglion has a 24-hour rhythm. Any one knows that disturbing the rhythm causes constipation, and eventually many neurotic symptoms arise. Long-continued indigestion produces malnutrition. Pathologic irritation passes to viscera at all and any times, in season and out of season, day and night, while organs are attempting to rest or to pass through a rhythm, always causing disturbances. Organs secure rest and repair between rhythms.

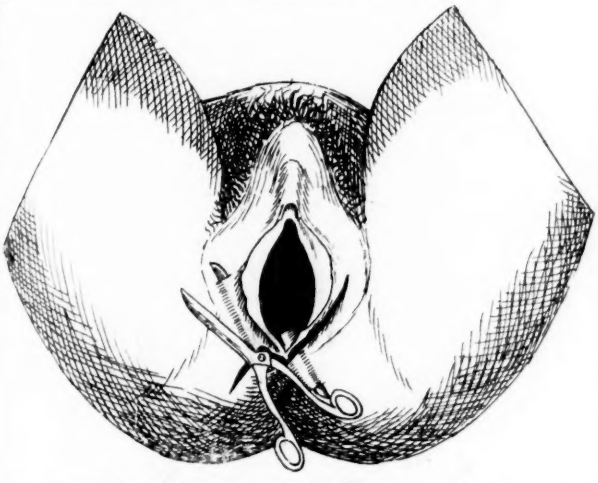

Fig. 50.—(Robinson-Scholer.) The flap formation. On the right the scissors are shown forming the anterior "cut;" on the left the blade of the scissors only is shown, forming the posterior "cut" beside the rectum.

Malnutrition is followed by anemia—a disproportion between the blood-vessels and plasm. Long-continued anemia is followed by neurosis. The numerous ganglia are bathed in waste-laden and irritating blood. Innumerable local and distant neurasthenic conditions are manifest. We have, then, as a train of evil symptoms following genital defects: 1, local irritation—an infection atrium; 2, reflex irritation to the abdominal brain, where it is reorganized and sent out to the various viscera; 3, indigestion and malnutrition; 4, anemia; and 5, neurosis.

In the incomplete cases of laceration the disturbance is attributed to gaping of the vulva and the consequent favoring of rectocele and cystocele. This condition is followed by uterine prolapse, endometritis and metritis. The patient suffers from ill-defined pains while standing and walking. These patients complain in a manner similar to that of those who are afflicted with enteroptosis. When the lacerations become complete, not only a physical defect of control of feces and gas exists, but a train of mental symptoms follow complete lacerations or serious lesions and gravely affect life, both physically and mentally. The patient is easily fatigued, neurotic constantly, liable to exacerbation of infectious processes.

One of the most unfortunate results of extensive laceration of the rectovaginal septum is diarrhea. When the sphincter muscles have been so far drawn apart at the ends that they are almost a straight line, the rectum has lost all control of feces. A straight sphincter is a symptom of complete laceration; the diarrhea accompanying the straight sphincter is very exhausting. The amount of separation in the sphincter muscle tells the story of the degree of laceration. When one can find the deep dimples in the skin, on each side of the gaping vulva, due to the cicatricial ends of the muscular bundles contracting, it may be estimated that the vaginal sphincter is extremely defective and that over half of its arc is wide open. Only a carefully planned operation can relieve this condition. The widely gaping vulva is exposed to much trauma and consequent infectious processes. The congested genitals and rectum produce excessive glandular secretion, which furnishes a culture medium not only to the pathogenic bacteria, but tends to multiply the regular residents of this locality into excessive number, and in all probability dangerous kinds, for doubtless bacteria rapidly change from one kind to another by change of food and temperature. It would be strange indeed if all the scores of uterine tubular glands could long remain normal with frequent congestions and decongestions. Excessive bacteria in any locality must produce their dangerous toxins, which become absorbed and carried away by the veins and lymphatics. The rectal veins are known to stand in direct communication with the liver by way of the valveless portal system. Hence may be observed the vicious circle established by the defective sphincter apparatus of the vagina. Again, consider the innumerable reflexes which must necessarily arise from the infected, frequently congested, occasionally acute, inflammatory invasions of the genito-rectal organs. These reflexes arise in all degrees and conditions, and the patient almost imperceptibly passes through the stages of indigestion, malnutrition, anemia and neurosis. Again, many of these patients are operated on by inexperienced surgeons, with consequent imperfect results. Then a conflict of opinion arises as to the perineal defect being the

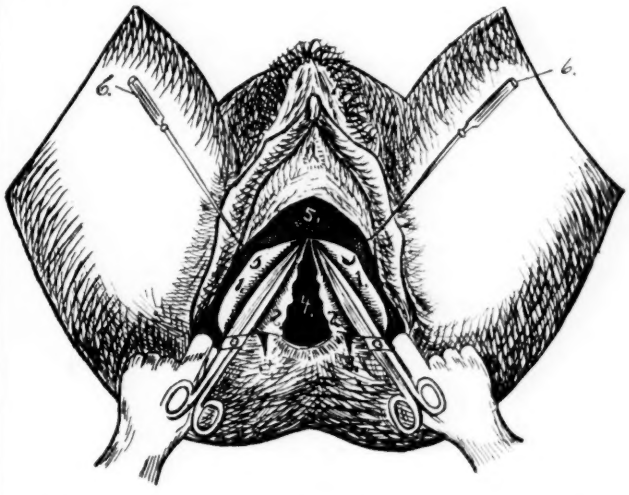

Fig. 51.—(Robinson-Scholer.) Flap formation with the scissors at the bottom of gutter between rectal and vaginal flaps. 1, 1, vaginal flaps held aside by the shepherd's crooks, 6, 6; 2, 2, rectal flaps; 3, 3, "back cuts;" 4, rectal lumen; 5, outline of cervix. This represents a complete laceration high up into the rectum.

cause of the trouble or whether the etiology is to be located in the nervous system, for one of the evils of today is the confounding of nervous and genital diseases. After an imperfect operation on the genitals, with a consequent imperfect result, the operator is liable to throw the whole defect on the nervous system. As the nervous system and the liver are the chief scapegoats of ignorance (and knavery) it is

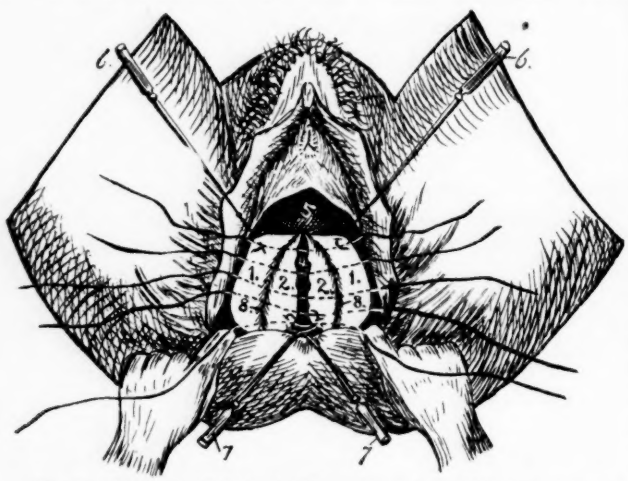

Fig. 52.—(Robinson-Scholer.) The sutures in position in a case of laceration high up into the rectum. 1, 1, the vaginal flaps held aside by the shepherd's crooks, 6, 6; 2, 2, rectal flaps held in place by the crooks, 7, 7; 8, 8, points to the line or angle of junction between the rectal and vaginal flaps.

difficult to demonstrate the error. It requires wisdom, knowledge and experience to discriminate between genital diseases and their consequent train of neurotic effects, and the diseases which definitely belong to the nervous system itself or to other causes than the genitals. I must insist, however, that this requires more time and skill than any general surgeon or physician is able to give.

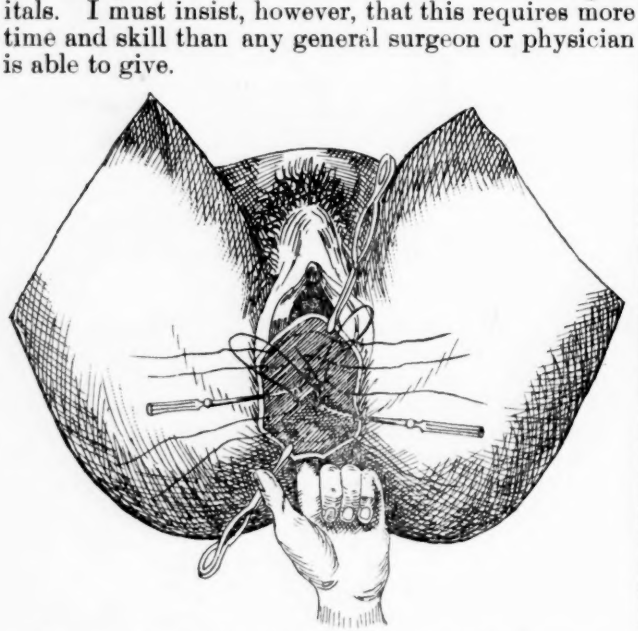

Fig. 53.—(Robinson-Scholer.) A case not ruptured into the rectum, in which the sutures are in position. The sutures are threaded from the median line, as seen in the cut. Observe that the sutures penetrate neither skin or mucosa.

Until one comprehends the practical anatomy, it is almost impossible to interpret the rational symptoms of the deficiency of the supports of the sexual organs. The popular view of general physicians that the perineal body is the chief support is one illusion which I find, after considerable experience in teaching, difficult to eradicate. It is the indefensible mechanical theory that the perineal body is the keystone, the cork which stops the bottle, or the wedge which plugs up the pelvic outlet. Unfortunately, a prominent American gynecologist at one time abetted this false theory.

One of the very common diseases accompanying perineal lacerations is endometritis. Little need be said to defend or explain this condition, for it is evident to all observers how the endometrium may be insulted by trauma, congestion and bacterial invasion,

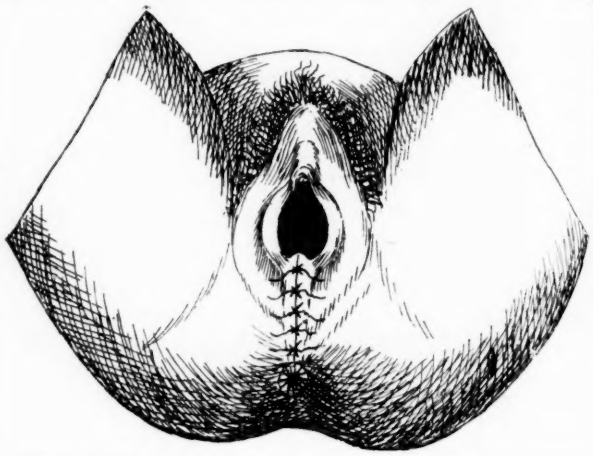

Fig. 54.—(Robinson-Scholer.) Completed operation on an incomplete laceration. Five sutures were employed.

when unduly exposed from deficient support. Excessive glandular secretion arises; leucorrhea, which may be non-infective, then pathogenic infection soon follows with its consequent train of evils.

This leads me to a subject of vast importance. It is the metritis (subinvolution) which so frequently accompanies laceration of the perineum. The general practitioner calls it subinvolution. But we will call

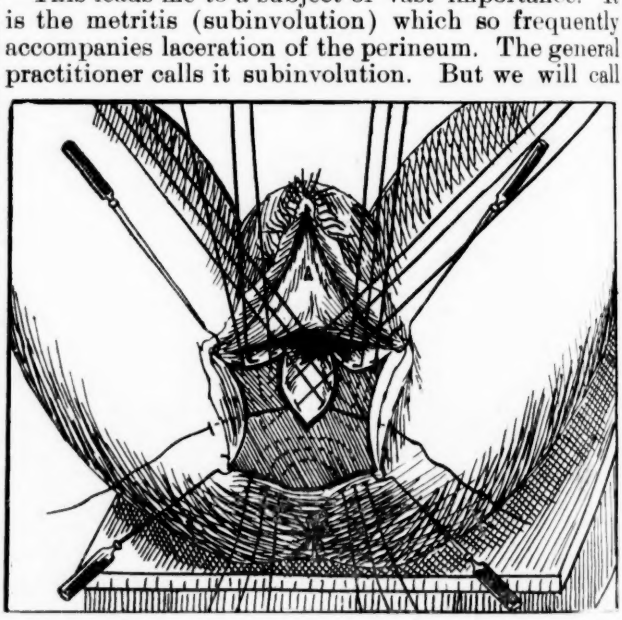

Fig. 55.—(Robinson-Scholer.) First stage of Dr. Emmet's operation, viz.: Denudation of the posterior vaginal wall; denudation of a triangle in each sulci of the vagina, with the noted method of his peculiar suturing.

it metritis, because we believe it to be of microbic origin. Be it remembered, the uterus above all organs is liable to infection, because its glands pass directly into its muscular walls. It has no submucous layer or barrier to protect the muscle. The intestine has a submucous muscular layer which acts like a barrier against microbe invasion. But the uterus has no muscularis mucosæ. It has no barrier between its glandular apparatus and its muscular apparatus, so

t microbes or their products which gain the uterine nds soon gain the muscular walls of the uterus d produce metritis. Hence metritis is one of the quent accompaniments of perineal laceration, and metritis is a very chronic disease, it is apt to con- ue even beyond the repair of the perineal injury. From this short view it may be observed that the ional symptoms of injuries to the pelvic floor are nerally a train of evils which increase with time, and

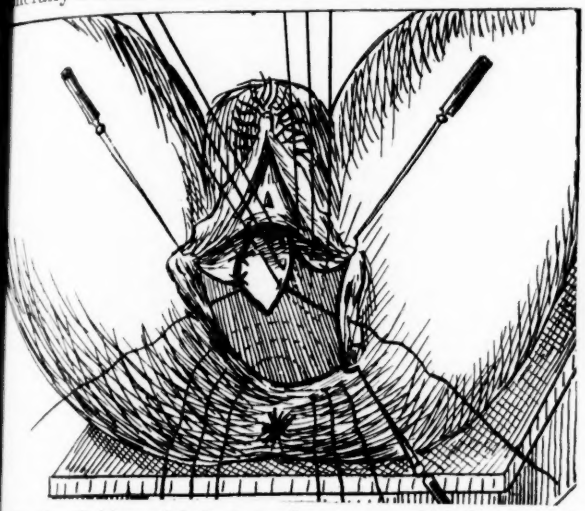

Fig. 56.—(Robinson-Scholer.) Another stage, in which the triangle in e right vaginal sulcus is closed with two sutures; sutures in position.

he final brunt is most apparent in the nervous sys- em. Many of the symptoms can only be accounted or by carefully noting the many cases of invisible acerations—the relaxed pelvic floors, perineal supports nd sphincter vagina apparatus—which disturbes cir- ulation by the vessels being torn from their proper ascial beds, the veins becoming elongated, dilated, traight, and losing their normal spiral form, and the erves being put on the stretch or traumatized.

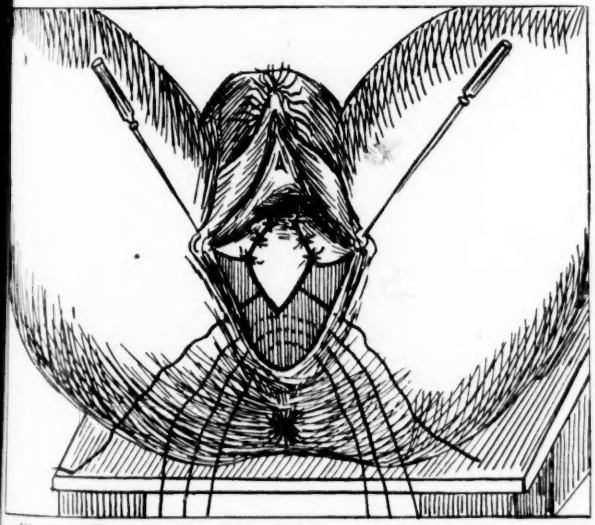

Fig. 57.—(Robinson-Scholer.) The two denuded triangles closed by utures; the remaining sutures in situ.

We thus have disturbed vascularization; congestions and decongestions of blood and lymph have also disturbed innervation from traumatized nerves. Enteroptosis exists and the avenues of infection are widely exposed. The supports of the pelvic floor have been overstretched by one or more labors and have not resumed their normal integrity. On examining such patients, as Schatz points out, the normal anal cleft is flattened out, the dent and furrow becomes broad and shallow and the anus, instead of being drawn up under the pubic arch, appears flat, exposed, and fallen back toward the coccyx. The skin perineum may be much larger than normal, being overstretched. The finger introduced into the vagina no more feels the rigid levator ani muscle loop, but in its stead the relaxed, overstretched, flabby tissues lying between the gap made by the separation of the levator ani fascia superior and inferior with its contained muscle in various degrees. Perhaps there is no lesion more overlooked in the pelvic floor by the general practitioner than the relaxed, overstretched outlet. In 1883 Emmet and Schatz first clearly announced their views in regard to relaxed pelvic outlet. The very deep perineum is deficient, while the shallow, short one is the vigorous one. The patient with relaxed pelvic outlet generally begins to complain of bearing-down symptoms on rising from bed some two or three weeks after labor. She feels weak, unable to work or exert herself, pain in the back, general lassitude and prostration.

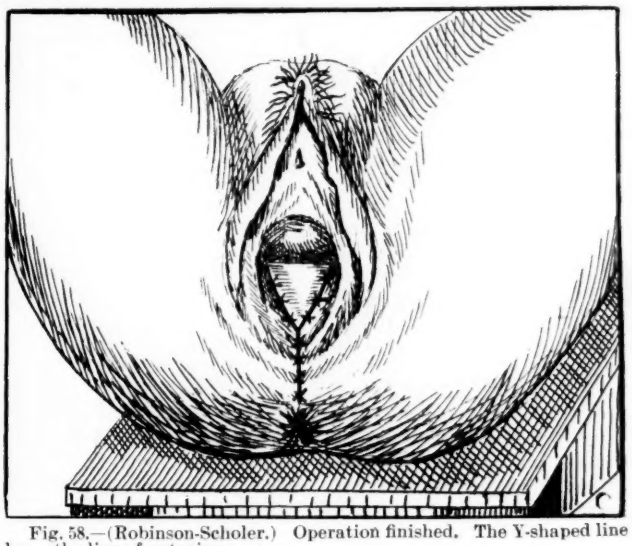

Fig. 58.—(Robinson-Scholer.) Operation finished. The Y-shaped line shows the line of suturing.

Fig. 59.—Author's perineorrhaphy needle.

The relaxed pelvic floor is most impressive to the operator, by examination before and after the anesthetic, when he is about to operate. Before the anesthetic the pelvic outlet is held in partial tension by the remnants of the muscular and fascial supports; the loops of the levator ani muscle being irritated by the non-balance of parts being torn, the patient is constantly losing nerve force by the attempts of the reflex irritation in keeping up the tension. When the patient is fully anesthetized the parts of the pelvic floor show vast relaxation and it becomes at once apparent to the hand and eye of the operator that a significant defect exists, beyond his expectation, in the sexual apparatus. The perineum falls back, the anus flattens and everts, the vaginal walls roll outward, and the deep anal furrow assumes a plane approximating that of the buttocks. Vast changes in subcutaneous and submucous supports have occurred, capable of being repaired only by an operation which restores vessels to a stable bed, nerves to a protected sheath, and organs to a position which will insure normal circulation and innervation—in short, proper nour-

ishment. With such patients in the erect posture the intra-abdominal pressure is continually displacing the viscera by forcing them into and through the weakened pelvic outlet. The pelvic outlet, beyond the normal floor is full of prolapsing organs which often deceive the practitioner by closing up the gap.

The length of time allowed to relapse between the injury and the operation on the perineum should not be less than three months. The parts do not heal well shortly after labor. Old gynecologists, as Byford, recommended at least six months to elapse before the operation should be performed. Perhaps four months after injury it would be fairly safe to operate. The old cicatrix can not always readily be found, but by pulling on the vagina in various directions the puckering tissue about the scar will be discovered. The palpating finger may also find it.

The cicatrix produces new points for the attachment of the torn fibers of the levator ani muscles which may give the outlet a peculiar, irregular, puckered appearance when the muscular bundles contract from their new points of attachments. The flap formation should extend beyond the cicatrices so that the ends of the muscular bundles may be included in the sutures. The time for operation should be midway between the menstrual periods.

In regard to the perineal body: The posterior curve of the vagina must be reproduced by restoring the rectovaginal septum.

A new perineal body should be restored, so that the natural backward curve of the vagina should persist, i.e., normal relations should be established between the perineal center of body on the one hand and fascia on the other. The perineal body, the punctum fixum of vulvar surface relations, should be restored.

In writing this essay I have derived aids and suggestions from all accessible authors and have attempted to duly credit the labors.

Some suggestions were acquired in regard to drawings from the book of W. J. Stewart McKay.

SOCIETY PROCEEDINGS.

The Chicago Society of Internal Medicine.

Second Regular Meeting, Sept. 21, 1898.

Dr. JOHN A. ROBISON, the president, occupied the chair, and delivered the Presidential Address to an audience of 156 members and visitors. After briefly outlining the object and aim of the Society, he directed attention to

A CLINICAL STUDY OF FIFTEEN CASES OF MALARIA.

He referred to the various forms of organisms and what relation they bear as etiologic factors in the production of the various forms of malaria.

1. There is the flagellate form of the parasite, concerning whose age and mode of production observers are not yet agreed. It is seldom observed, but sometimes may be found in the blood a few hours after febrile paroxysm, or less often during the afebrile. It is the small, pale, movable body, having from one to three extremely delicate, pigmented, thread-like processes, which are the locomotive organs of the parasite. It is generally ecto-globular. Some observers believe the flagellate organisms are young organisms, others claim they are not degenerate forms, and a great many authors maintain they do not exist until after the blood is exposed to the air. It seems to him the claim that they are young organisms would stand best for the reason that they are provided with flagella which permit them to seek their prey — the red-blood corpuscles. Sakharoff and Danilewsky believe they are a separate species of organisms, since they possess a very large nucleus, while the non-flagellated forms have small nuclei. They are more frequently observed in the irregular forms of malaria.

2. The parasite of tertian malaria. The ecto-globular parasites invade the red-blood corpuscles, and are seen as small, pale, hyaline ameba, sometimes star- or cross-shaped. Sometimes no pigment granules are noticed, or one may see a few scattered, peripherally placed granules. Repeated observations show that the bodies have grown at the expense of the host; the pigment granules are more marked, and display very active movements. At the end of forty-eight hours there may be from six to twenty granules, and the blood corpuscles have lost their coloring matter and they look like thin translucent cells. Segmentation now occurs, and this process precedes or accompanies the chill or fever. The pigment granules become motionless and collect in the centers of the amebæ, and lines of striation stretching toward the periphery through the fine granular protoplasm cause the organism to have the appearance of a rosette. The segmentation proceeds until it is divided into eighteen to twenty spheres, the shell of the corpuscle bursts, and the small, rounded hyaline bodies, each being a translucent bit of protoplasm, with a highly refractive central spot, are set free in the circulation, being doubtless the spores which develop into the plasmodia. The cycle of development requires two days. Two groups of tertian parasites maturing on alternate days may cause the quotidian form of the fever.

3. The quartan form of parasite. In the quartan form of fever the pigment granules are larger, blacker, and the amboid movements are more sluggish. Their growth does not decolorize the corpuscle to the same extent, nor do they fill the corpuscle so completely. They mature in from sixty-four to seventy-two hours, and, while they occupy the greater portion of the corpuscle, they are surrounded by a rim of colored stroma. The segments seldom reach twelve in number, and they eventuate in small spherical or ovoid bodies. The quartan organisms may mature in two groups on successive days with one day's interval between (double quartan fever), or three groups may mature on successive days, producing a quotidian form of fever (triple quartan).

4. The estivo-autumnal, or irregular forms of fever. According to Osler, "the early form of the estivo-autumnal parasite is not unlike that of the tertian and quartan varieties, but the hyaline body is mooring-like, more highly refractive, and the central part often looks shaded, as if a more solid body were enclosed within a vacuole. As this form increases the ameboid movements are well seen. The pigment is in small amount; at first, in the form of one or two very dark granules at the margin of the amebæ, and the pigments never so abundant as in the tertian or quartan forms. The organism rarely occupies more than one-third of the corpuscle, the stroma of which is never entirely decolorized. On the contrary, it often presents a peculiar brassy, green appearance, and looks shrunken or crumpled. The cycle of development of this form is rarely carried out entirely in the circulating blood, but the bodies with centrally placed pigment are not uncommon. The observations of Italian observers seem to show conclusively that the segmentation takes place in the spleen, the bone-marrow and the internal organs. The length of time of its cycle of development has not been determined. Probably groups mature at varying intervals of time. The fever associated with this organism is characterized by irregularity, the paroxysms are not at definite periods, and the pyrexia may be more or less continuous, with remissions. In the irregular form of the fever may be found the crescents of Laveran. Sometimes they are sickle-shaped, oval or circular, and provided with flagella.

Technique.—In examining for plasmodia two methods may be used: 1, the fresh unstained blood may be placed between a cover-glass and a slide; 2, the blood may be dried and stained. In obtaining the blood for the first method square cover-slips and slides must be thoroughly cleansed, so that the blood will spread evenly and not form rouleaux, which would conceal the plasmodia if present. A small drop of blood should be used. The slide and cover-slip should be arranged at the side of the bed so they can be handled without touching the surface of the glass. The ear is cleansed with water and alcohol, allowed to dry, and then punctured. The cover-slip is touched to the apex of the blood drop and quickly dropped upon the slide, when the blood will be quickly spread and may be examined with a one-twelfth oil immersion lens. In some cases it may be necessary to use the dried specimens, if a microscope is not accessible, the weather is cold, or you wish to confirm your diagnosis with the fresh blood examination.

To obtain the blood for staining use two cover-slips and touch the apex of the blood drop with one, and drop it on the other cover-slip, and after the blood has stopped spreading, gently separate them by sliding the one off the other in the plane of their surfaces. These preparations are then allowed to dry in the air and are afterward fixed by immersing for a period of one to twenty-four hours in equal parts of alcohol

d ether. The simplest form for staining the dried slips is h eosin and methylen blue, the eosin staining the red-blood rpuscles, and the methylen blue staining the plasmodium. e specimen should then be melted in balsam and can be t indefinitely.

n examining the fresh specimens certain conditions are apt confuse one, if inexperienced. These conditions are: 1, ditions brought about by the refraction of light, which es the appearance of a hyaline body regularly and sharply fined; 2, vacuolated red blood corpuscles; 3, crenated red-od corpuscles. In the first case, there are usually in the d a larger number of the seeming hyaline bodies than we uld hope to find of plasmodia. By focusing with the fine justment it will be found that these bodies increase and minish in size, whereas the plasmodium does not vary in ze, but grows dimmer and becomes clearer as the red-blood rpuscle is found in or out of the focus. The outine of the asmodium is usually rather indistinct and seems to merge to the protoplasm of the corpuscle, being situated in most ses between the center and the periphery of the corpuscle, d not in the center, as is the case with the so-called refrac-e bodies. In the second of these conditions the points of fferentiation just mentioned will serve to affirm or exclude e presence of the corpuscle, while in the case of the crenated rpuscles it will be found that the corpuscle has a jagged ge and that the above stated features of the plasmodium can t apply.

Dr. ROBISON then details fifteen cases of malaria, two of hich were sporadic, and the other thirteen were epidemic and curred among the returned soldiers of the late war.

Case 1.—W. G., age 38, single, farmer, German descent, lives orth of Grossdale on the banks of the Salt Creek, where two ses of malaria have recently developed. He worked in the lds harvesting, but Friday, September 2, felt weak and sweat rofusely. Sunday, September 4, was compelled to remain in d on account of extreme weakness and vomiting. Tuesday orning, at 6 A.M., patient had a chill lasting twenty minutes, llowed by high fever and sweating. Thursday at 1 A.M., chill sted an hour, fever and sweating, accompanied by delirium. ntered Presbyterian Hospital, September 8. Spleen palpable n the 9th. Blood examination on the 9th at 3 P.M. revealed e presence of a crescent, endoglobular and octoglobular plas-odia. The patient was discharged on the 14th, not having ad a chill nor a temperature above normal, nor had he taken y quinin. It was a case where the infection was resisted ithout the use of quinin.

Case 2.—D. P., age 18, male, single, Greek, lives in Chicago. our months in America. Never was ill before. Tuesday, eptember 6, had a severe chill at 2 P.M., accompanied by head-che, backache and anorexia. Entered the hospital, Septem-er 9 at 4 P.M., temperature 104.2 degrees F., pulse 100. At 3 .M., September 10, the patient was restless and delirious. At A.M. the blood examination revealed the presence of cres-ents. This patient evidently is one of those who receive their nfection in one country, and it is developed later in another, s he doubtless was infected in Italy, and the infection did not evelop until he lived in Chicago a while. Received Warburg's incture. Discharged cured September 20.

SOLDIERS.

Case 3.—Tertian fever. J. D., age 34, single, Company M, First Illinois V. I. Had yellow fever in July at Siboney. Was aken ill Monday, September 12, at 10 A.M., with a chill lasting wo hours, very severe and followed by fever and sweating. Wednesday, had a second at 10 A.M. Was admitted to the ospital, Thursday at 4 P.M. At 5 P.M. temperature was 104 egrees F. Friday at 4 P.M. had a chill lasting half an hour. The spleen was palpable. At 8:15 A.M. Friday, a blood exam-nation revealed a few endoglobular plasmodia, with scant pig-ment granules, sluggishly motile. The patient responded promptly to quinin.

Case 4.—H. J., age 25, single, Company K, First Illinois V. I. Gives history of two complaints: 1, Six weeks ago, while in Cuba, had chills and fever which yielded to quinin in four days. Two weeks later had an attack lasting three days, and two weeks later was ill two days. That attack commenced with one paroxysm of chills and fever, no recurrence of the same taking place until the effect of the quinin wore away. 2. Four weeks previous to entering the hospital he was attacked with severe pains in the bowels, with looseness of the bowels. Has averaged about twelve stools per day ever since. The stools are dark-brown, unformed, slimy; 2, a light gray and tinged with blood; 3, a light brown; 4, white and like mucus for a few days, and at the present time are returning to their first appearance. The spleen is slightly enlarged. A blood exam-ination at 11 A.M. September 14, revealed the presence of a large endoglobular plasmodium, the blood corpuscle decolor-ized, with pigment granules having a sluggish movement. September 15, at 3 P.M., he had a chill lasting twenty minutes, and the temperature after the chill was 104 degrees F. A similar occurrence took place at 3 P.M. on the 16th. There has been no chill or fever since the exhibition of quinin. This is undoubtedly a double tertian.

Case 5.—S. J., age 20, single, Company L, First Illinois V. I. Taken ill August 30 with chills just before leaving Cuba. Had chills every night until after treatment at a hospital in Brooklyn. One week previous to entrance into hospital, had been walking about, although very weak. Had slight chills about 5 P.M., September 18, 19 and 20, followed by a tempera-ture of 104 degrees F. September 20, at 1:15 P.M., a blood examination revealed, 1, numerous small endoglobular plasmo-dia with small, fine, very active pigment granules; and 2, large endoglobular plasmodia with coarse, sluggish granules. This apparently is a case of tertian and quartan malaria, the parox-ysms developing daily. It would be natural to suppose it is a case of double tertian, or triple quartan, were it not for the character of the plasmodia found.

Case 6.—A. E. H., age 32, single, Company H, First Illinois V. I. Had yellow fever in Siboney early in August. Sunday, at 8 P.M., September 10, had a chill, and has had one every day since. Was admitted to the hospital September 15, and had a chill at noon lasting half an hour. The chills recurred Sep-tember 16 and 17. Ehrlich's reaction was found. September 18, a blood examination at 8 A.M. revealed very small endo-globular plasmodia, with fine pigment granules. One very small ectoglobular body with very fine, scarcely discernible, pigment granules. There has been no chill since the 18th, after placing the patient on quinin. It is undoubtedly a case of double tertian.

Case 7.—J. F., age 21, single, Company F, First Illinois V. I. Early in August he found himself gradually losing strength. One day went to bed, and the next day at noon had a chill. The chills recurred at that hour for four days. Resumed work in ten days, and has been able to be up and around ever since, until September 12, when he had a prolonged chill at night. Entered hospital, September 13. The spleen was palpable. Has had no chill since. September 14, at 11:30 A.M., the blood examination revealed endoglobular plasmodia, the corpuscular protoplasm decolorized, and of hyaline appearance. Fine pig-ment granules, with active motility. The corpuscle was en-larged one and one-sixth, the plasmodium occupying four-fifths of the corpuscle, and well outlined. Double tertian.

Case 8.—J. C., age 33, single. Company H, First Illinois V. I. Had typhoid fever eleven and four years ago. Was taken ill with a chill September 17, lasting from 3 A.M. to 11 A.M., followed by very little fever or sweating, and the patient has been having daily chills of differing severity at various times of the day, sometimes in the morning, and sometimes at night. Entered hospital, September 18. Spleen palpable. Blood examination at 2 P.M. revealed an ectoglobular body, one-third of the diameter of a red-blood corpuscle, with six slug-gishly motile pigment granules, and a crescentic, endoglobular body, with small, fine, sluggish pigment granules. This is apparently a case of triple quartan. Quinin has proven effi-cacious.

Case 9.—C. C. K., age 21, single. Second U. S. Cav. While in Cuba suffered from chills and fever of an irregular type. Had not felt well since landing in New York. Had a chill severe in character, lasting one hour, at 7 A.M., September 11. Had a second chill September 12, at 1 P.M. Entered hospital, Sep-tember 15. Temperature at 11 P.M. was 103.4 degrees F. Sep-tember 16, at same hour, was covered with profuse cold perspi-ration. A small and young endoglobular parasite, which has undergone fusion, one segment containing motile pigment gran-ules. September 17, at 4 P.M., the temperature fell to 96.6 degrees F., and it has remained subnormal, reaching 98 degrees only once since. He has aching pains in the legs, but otherwise feels very well. This case belongs essentially to the asthenic and adynamic form of the fever, probably of the tertian variety.

Case 10.—J. W. M., age 25, single. First Illinois V. I. This patient was formerly a private patient of mine, whom I had sent to Colorado for incipient tuberculosis. He remained there all winter, and when the war broke out, he came home and en-listed in the army. Was taken ill in Cuba about the middle of August with dysentery and fever. Had no chills, but was weak and dizzy. Two weeks after boarded the transport *New York*, and the sickness was continued, with weakness, diarrhea and anorexia, but no fever or chills. Arrived in Montauk, August 28, and was helping in the hospital for days, all symptoms except extreme weakness having disappeared. Arrived in Chi-cago, September 6, having passed a night of severe suffering on

the train, being extremely weak and feverish. Entered the hospital September 6, at 1 P.M. Temperature 104 degrees F., pulse 100. Respiration 28. Some abdominal tenderness. Face flushed, and the pulse small and quick. The spleen was palpable. The temperature followed the course as shown in the chart until, at 8 P.M. of the 8th instant, it fell to 98.2 degrees F., after a profuse perspiration. The temperature then gradually rose to 103.4 degrees F., the next afternoon, and remitted and rose again to 104 degrees, the second afternoon, and dropped to 94.4 degrees F. the third evening, after a profuse perspiration. This case had the facies of a typhoid, and there was a suspicion of a renewal of tuberculosis in some form, and yet the behavior of the fever was more like a case of malaria. Consequently, at 2 P.M., September 10, an examination of the blood revealed hyaline bodies of irregular shape, irregularly pigmented with large, coarse granules. It was diagnosed as the quartan form of malaria. The subsequent course of the disease demonstrated that it required about seventy-two hours for the complete cycle to take place. This case teaches the value of a blood examination. If the circumstances under which the patient was taken ill had not given rise to a suspicion of malaria, it might not have impressed us a necessity to examine the blood.

Case 11.—G. W. S., age 23, single. Sergeant First Illinois V. I. Had malaria in fall of 1896; ill two weeks. Recurrence in February, 1897, continuing until October. Is an athlete. Was taken with fever September 12, but prior to the fever had been having dysentery for one week. Physical state fairly good, but spleen palpable. The physician who sent him to the hospital diagnosticated the case as typhoid fever. On admission, the temperature was 103.2 degrees F., pulse 102, respirations 20. What appeared to be one rose spot was found on the abdomen. Ehrlich's reaction was demonstrated. September 17, the temperature ranged from 101.4 degrees F. September 19, at 8 A. M., it was 99.6 degrees, and at 8 P. M., was 100.2 degrees. September 19, at 8 A. M., it was 98.6 degrees, and has not been above normal since. September 19, at 11 A. M., the blood revealed the presence of a large endoglobular plasmodium, with coarse pigment granules, very motile; also crescents with sluggishly motile granules.

Case 12.—V. B., age 30, First Illinois Cavalry. Was taken ill at Chickamauga, and the case was diagnosticated as typhoid fever. Had frequent bowel movements, abdominal tenderness and was delirious the greater part of the time. Was admitted to the hospital September 4. Had a daily exacerbation of temperature at 4 P. M., reaching 103 or 104 degrees, No chills. September 4 his blood revealed a crescentic body, and on September 14 a small endoglobular body was observed, with sluggish pigment granules. Ehrlich's reaction was negative. This case did not present the symptoms of typhoid.

Cases 13, 14 and 15, gave unimportant histories. In case 13 endoglobular plasmodia were found, with very motile granules; in case 14, endoglobular bodies, with sluggish granules, and in case 15, endoglobular and hyaline bodies.

CONCLUSIONS.

1. The study of these cases has led me to the conclusion that it is the duty of every physician to examine the blood of every patient in which there is an irregular temperature, where the physical signs do not indicate the diagnosis.

2. That Ehrlich's test can not be regarded indicative of typhoid fever, measles, or tuberculosis, as it is present in malaria.

3. That it is wise to corroborate the fresh blood tests with the stained specimens to prevent the confusion of a vacuole with a hyaline body. This point has already been referred to in a previous part of the paper.

4. While typhoid fever may run concurrently with malaria, the frequency with which this occurs is not great.

5. In some of the irregular forms of the disease we have found that it does not yield readily to quinin.

6. In Case 13 there was an idiosyncrasy as to quinin, it producing, in small doses, itching of the dody, roaring in the ears, and gastric pains. Thirty-minin doses of dilute hydrobromic acid were given every four hours for twenty-four hours, before the administration of quinin, when ten-grain doses could be taken without any discomfort, and it broke up the paroxysms.

American Public Health Association.

Twenty-sixth Annual Meeting, held in Ottawa, Ontario, Sept. 27-30, 1898.

(*Concluded from page 928.*)

THURSDAY, SEPTEMBER 29—MORNING SESSION.

The association was called to order at 10 o'clock, Dr. Benjamin Lee, first vice-president in the chair.

The secretary reported, on behalf of the executive committee, the resolution of Dr. Wingate of Milwaukee, that a special committee of five be appointed for the purpose of drafting a definition of the word "epidemic," with a recommendation that its report be adopted, and it was thereupon adopted. Respecting the resolution of Dr. Suiter of Herkimer, N.Y., to promote the enactment of laws preventing the sale of long rubber nursing-bottles, the executive committee reported that it considered such proposed action inexpedient, and recommended that the resolution be not passed, in which the association concurred.

Two candidates were proposed for membership and elected by the association.

Dr. FRANKLIN W. WRIGHT of New Haven, Conn., offered a resolution which was referred to the executive committee, creating a special committee of five members, of whom the president, secretary and treasurer shall be three, to consider the feasibility of issuing instead of an annual volume of transactions a monthly periodical devoted to sanitary science.

Dr. HENRY D. HOLTON of Brattleboro, Vt., treasurer, presented his annual report, showing a balance of cash on hand of $1,223.03. The report was referred to an auditing committee, vice-president Lee naming as sub-committee Drs. Irving A. Watson of Concord, N. H., Peter H. Bryce of Toronto, Ont., and Dr. Franklin W. Wright of New Haven, Conn.

The first paper on the program for the day was one by Dr. MANUEL SEPTIEN of Queretaro, Mexico, entitled

COMPULSORY VACCINATION OUGHT TO BE IMPOSED AS A PARAMOUNT NECESSITY,

and at the request of the writer it was read by Dr. Cabaret of Fall River, Mass.

Dr. SEPTIEN regretted the apathy that seemed to prevail on this subject. It is just one century, he said, since the immortal Jenner announced to the world the most important discovery registered in the annals of medicine; that which undoubtedly has saved the greatest number of lives. Smallpox was centuries past the most terrible scourge that afflicted the human race. It alone accounted for 10 per cent. of the total mortality, leaving on the victims it could not carry away the marks of its passage stamped, in an indelible manner, on the whole surface of their bodies. But neither the people nor the governments have known how to take advantage of the immense good which vaccine is capable of producing. Smallpox ought to have disappeared long ago from all civilized countries, and everybody ought to carry on their arms, as a shield, those everlasting stigmas which vaccination leaves, as a seal printed by the solicitude and paternal care of the enlightened government whose lot it is to watch and care for the lives and health of the people, as they are the greatest blessings that man can enjoy here on earth. Its practice, however, has been and is still repulsed in the last years of this century of light, even by the peoples most advanced in civilization. In England itself, who would believe it! there are societies, such as the "Anti-Vaccination Society," "Peculiar People" and others, who have for their object the opposing of vaccination. In this very country, Lower Canada, a great popular movement was started a few years ago, headed by several distinguished medical men rejecting vaccination. The occurrence of several serious cases of vaccinal ulcerations, probably of syphilitic origin, was the cause of this agitation, which had for consequence such a lamentable end. Compulsory vaccination could not be carried out from the year 1876, till in 1884 and 1885 such a strong epidemic broke out that in nine months, in the city of Montreal alone, thousands were attacked by smallpox, and causing the death of 3500 persons in nine months. Probably this is one of the most notable examples, in these latter years, of the rapid spread of smallpox. The ground was already prepared and the only thing wanting was the sowing of the seed; a Pullman car conductor arriving from Chicago, where he had contracted the disease, was the vehicle of infection. Smallpox with rare exceptions, only attacks those who have not been vaccinated. Nor in the most severe epidemics had it ever been seen that the doctors, nurses, or the persons in attendance of the sick had been infected, provided they had been well vaccinated. Let us hope that the disease of smallpox will disappear very soon and forever; that which may be considered the most terrible of diseases, because it is the most mortiferous, cruel, and the most loathsome. The unfortunate that is not killed by it, is left with the face and the body covered with the most horrible scars; and in many cases it destroys the sight and even the hearing. He proposed a petition to the three governments represented in this association to provide more energetic laws than existing ones, making vaccination obligatory and inflicting severe penalties for their evasion.

Dr. J. C. SHRADER of Iowa City, Iowa, second vice-president

of the association, said that in Iowa all children, before admission to the public schools, were required to present marks of vaccination. It is held that the State can not pass a law compelling an individual to submit to the operation, as trenching upon the liberty of the person, but the board claims it has the right to establish this rule, and it has been in practice for years.

Dr. CURTIS of Albany, N.Y., said that every member of this Association knows the name of ELISHA HARRIS and remembers his earnest interest in this matter, and that one of his efforts was directed toward obtaining virus from the Jennerian Society with the view of antagonizing the charge as to the danger of inflicting other grievous injury from the use of impure virus.

Dr. PATTERSON of Winnipeg, Man., doubted whether the courts of any civilized nation will uphold compulsory legislation. Vaccination is a disease and it is doubtful whether you have a right to inflict a disease upon an unwilling person. School boards, however, can adopt the regulation that children, who do not present evidences of protection against smallpox should not be admitted.

Dr. GEHRMANN of Chicago insisted that the results of Jennerian virus can be obtained by modern improved methods—glycerized lymph destroys foreign bacteria and the resultant vesicle is a true "pearl on on the roseleaf."

Dr. JONES of Baltimore said that in July last two cases of smallpox were brought into that city from Germany. Their companions were vaccinated and developed such bad arms that the tubes used were carefully examined, and in these and many other points large numbers of pus corpuscles were discovered.

The report of the committee on "Demography and Vital Statistics in their Sanitary Relation" was then presented by the chairman, Dr. CRESSY L. WILBUR of Lansing, Mich., Chief of the Division of Vital Statistics of the Department of State.

The resolutions embodied in the Committee's report having already been adopted on the recommendation of the executive committee, to whom they had been referred, the committee was by vote continued.

Dr. JOSÉ RAMIREZ, general secretary of the Superior Board of Health of the Republic of Mexico then read a paper entitled

OUGHT WE TO REOPEN THE LEPER ASYLUMS?

"Leprosy is still," he said, "scattered throughout the world. As its origin is not of a telluric character, we can understand how it invades climates of widely different character. It is a disease exclusively confined to man, of a bacterian character, contagious, and one that respects no race whatever." He then alluded to the disappearance and reappearance of the disease in various countries, making the disease serve as a thermometer to indicate the degree of hygiene of different people. "These facts lead us to a comforting conclusion: That leprosy, an incurable disease, can be suppressed in civilized countries by means that are within the reach of the sanitary authorities. An empiric observation of some centuries has perfectly demonstrated the contagious character of leprosy (still denied by some physicians); and the arbitrary measures that up to the middle ages were employed to prevent this fearful contagion proved by their positive results that these observations were correct—that is to say: That the isolation of the lepers was the most certain method of preventing the appearance of fresh cases." The disease, the doctor thinks, is not hereditary. The long accepted theory that children inherit the disease from contaminated parents has been disproved, and this fact holds out greater hope for the future, besides allowing sanitary precautions to be softened, so that in due time measures may be adopted for preventing contagion. It was a fortunate fact that in the greater part of South America leprosy had gradually disappeared. "Leprosy has very rarely been found in Canada, although well-established cases have been seen. In the United States there are a few small foci, which are especially found in Louisiana, Texas, California, Minnesota and Oregon, but the recent annexation of the Sandwich Islands places the nation in an especial condition to at once undertake measures of defence against that immense focus of leprosy which is so well-known and is so dangerous.

In Mexico we also have leprosy scattered in different States. "We, therefore, find that Canada, on account of the British colonies of India, the United States, on account of the foci in its own territory and the recent annexation of the Sandwich Islands, as well as Mexico on account of the numerous foci it contains, are three nations which ought to come to an agreement with the view to taking steps against the propagation and for the establishment of uniform measures of prevention as far as is permitted by the special conditions of each country. The character of these measures is a subject that undoubtedly will give rise to a great deal of discussion. At the end of the century we can not and ought not to put into practice the ostracism to which lepers were formerly condemned. Now, when we know that contagion is something tangible and not a subtle gas or impalpable emanation, now when we have at our disposal means for preventing its propagation, now is the time for us to study the most adequate means in accordance with our knowledge, to fight the disease with greater success. There can be no doubt that these humane sentiments inspired the governments that convened the international conference for the study of leprosy, which met in Berlin during the year 1897. This conference, attended by the most competent specialists of the world, and starting from the principle of the incurable character of leprosy, passed resolutions directed to the prevention of the propagation of the disease."

The deductions are as follows:

1. In countries where leprosy forms foci, or has great extension, isolation furnishes the best means of preventing the spread of the disease.

2. The system of obligatory notification, observation and isolation, as carried out in Norway, is recommended to all nations with local self-government and a sufficient number of physicians.

3. It must be left to the administrative authorities, after consultation with the medical authorities, to take such special measures as are applicable to the special social conditions of the districts.

Dr. HENRY M. BRACKEN of Minneapolis, secretary and executive officer of the State Board of Health of Minnesota, presented and read a paper on the same subject, entitled

LEPROSY IN MINNESOTA AND THE NORTHWEST.

He questioned the accuracy of the statements in Allbert's System of Medicine respecting the Norwegian leper of Minnesota, Wisconsin and Dakota, and said we have knowledge of fifty-one lepers having resided in Minnesota, seventeen of whom had died before 1890. Twenty-one is probably the highest number of lepers known to have been living in this State in any one year (1893). At present thirteen are known to be living there. Dr. Bracken drew special attention to a few facts emphasized by his tables and records:

1. The impression that leprous immigrants from the Scandinavian peninsula are all from Norway is a wrong one. Five of eleven recorded in 1897-8 were from Sweden.

2. The feeling that we can quarantine against lepers by watching immigrants is an unsafe one. The family history of all immigrants from a country where leprosy prevails should be secured before they are allowed to embark for America, and no member of a leprous family should be permitted to land upon our shores.

3. It appears that the conditions antagonistic to the spread of leprosy are also opposed to sterility, as borne out by the families of our lepers who have children, as shown by the following numbers: five, five, six, six, four, six, four, five, eight.

4. It is possible for leprosy to die out in certain favored sections, as Minnesota, without segregation, provided the importation of lepers is discontinued.

5. Even in Minnesota one has but to visit lepers to feel that segregation should be insisted upon in all cases. Entering a filthy house and seeing a leprous mother, careless in her habits, it is evident the children are not safe.

6. Segregation in single States is not practicable, since it would only drive lepers from States enforcing it to those not doing so.

7. A federal home should be provided for these unfortunates where they could be cared for more economically and satisfactorily than through any State's provisions.

8. In spite of all precautions there will be some leprous individuals in this part of the world for many years to come.

9. The Scandinavian peninsula does not furnish all the leprous individuals found in the United States.

The discussion on the papers of Drs. Ramierez and Bracken was very animated. Dr. Henry B. Horlbeck, health officer of Charleston, S. C., urged the establishment of a Federal leper home on one of the islands on the southern Atlantic coast of the United States.

Dr. WILKINSON of New Orleans, said that the State of Louisiana had already rented a tract of land in that State and established a leper home, admission to which was not made compulsory, but where they went willingly. They cultivated the land, so that the home was almost self-supporting. The leper wants occupation. He did not think the Atlantic coast islands the preferable site on account of the gales to which they were subject.

M. W. BOARDMAN of Ottawa, of the Department of Agriculture, described the Dominion Government's Lazaretto at Tracadie, N. B., where he said there were a year ago twenty inmates, sixteen of these males, the youngest eleven and the

oldest sixty-one. Four are in the early stage, ten were advanced, and six far toward the end. There were nine deaths in the year, all having been enfeebled by *grippe*. Eight new cases have been admitted, four from Manitoba. All, including the Icelandic parties, seem surprisingly contented. There is seldom any difficulty in the absence of a law enforcing segregation in removing those affected. When a man is declared leprous by the inspector of leprosy, his neighbors and those giving employment shun him, and he is glad to avail himself of the comforts of the leper's home. The Lazaretto at Tracadie is fulfilling its object, that of segregation, in the most satisfactory manner.

DR. LEE of Philadelphia said that of the two plans, isolation recommended by the author of the first paper, and segregation by the second, he was decidedly of the opinion that segregation was the proper course. His opinion was concurred in by Dr. BURROUGHS of Abbeville, N. C., Dr. GIBSON of Iowa and Dr. PATTERSON of Manitoba.

Dr. JONES of Baltimore instanced the single leper, who is so great a trouble and expense to the health office of that city, that it illustrates the necessity for the national government to establish a home where similar cases can be segregated.

Dr. DURGIN of Boston said that a leper is so dreaded, and the facilities for their care so lacking, that cases are hidden away as long as possible. He has one case who requires a special nurse and all the paraphernalia of a hospital, who ought properly to be in some home.

Dr. HORLBECK of Charleston, S. C., offered a resolution, which was referred to the executive committee, that the American Public Health Association call the attention of the government to the presence of leprosy in the country, and urge the necessity of establishing a home where sufferers from this disease can be segregated and given proper care.

Mr. CROSBY GRAY, health officer of Pittsburg, Pa., related the case of a native Pittsburger, who contracted leprosy in Para, Brazil, ten years ago, and finally returned to his home sick. He entered a hospital, where the case was diagnosed as leprosy and he was surreptitiously removed. He is now in a separate building in the hospital grounds, under the care of a nurse at two and a half dollars a day, making his maintenance rather an expensive luxury.

Dr. GEORGE H. ROHÉ, former health officer of Baltimore, Md., deprecated the sanitary shrieking and hysterics excited by this disease, and said he would just as soon treat a case of it in a general hospital as any other. In fact, it is less dangerous than syphilis. Nevertheless, he believed it would be wise to have a home established where the leprous could be comfortably domiciled and properly cared for.

Dr. BREÑA of Zacatecas, Mexico, said if this resolution accomplishes its purpose, it will alone be sufficient to justify this meeting. He would rather die of diphtheria than live neglected like a leper.

The report of the committee on Sanitation, with Special Reference to Drainage, Plumbing and Ventilation of Public and Private Buildings, was presented by the chairman, Mr. J. W. Hughes of Montreal.

THURSDAY, SEPTEMBER 29—AFTERNOON SESSION.

The Advisory Council convened at 2 P.M. at the Parliament Buildings. Thirty-three members were present, representing as many different States and Provinces—twenty-two American, four Canadian and seven Mexican—the President of the Association, Prof. CHARLES A. LINDSLEY, being ex-officio chairman. The council proceeded to nominate officers for the ensuing year and select the place of the twenty-seventh annual meeting in 1899. Invitations to hold the meeting were presented from Minneapolis, Minn, Asheville, N. C., New Orleans, La., and Chicago, Ill. The fact that this was the third time the association had been invited to Minneapolis determined the choice of the council.

The afternoon session of the association was called to order at 3 P.M., the first vice-president, Dr. BENJAMIN LEE of Philadelphia in the chair.

Mr. J. W. HUGHES of Montreal read the first paper, entitled

THE INTERCEPTING TRAP IN PRIVATE SEWERS,

supplemental to his committee report, and which adjournment for luncheon prevented being read therewith. He unhesitatingly condemns the fitting of the intercepting trap in private sewers. Minute investigation has "shown that when a main intercepting trap was used that it not only modified the speed and partly obstructed the flow of sewage, but it prevented any of the air carried down by the soil and other waste water pipes from discharging into the street sewer, where its areating functions are so necessary to commence the purification of the sewage in the drains and assisting in preventing sewer gases generating in the sewers." It has also been shown "that wh the main intercepting trap is omitted there is a superior a self-cleansing flow of sewage, and that large volumes of air p forward to the street sewer, creating a healthy atmosphere a circulation of air down the soil pipe, through which the fluid passing, and up other soil pipes that are at the time standi idle." Mr. Hughes said that his observation had led him believe that in houses in which there was an absence of sew pipes having obstructing traps there was freedom from odo and diseases that could be traced to sewer gas poisoning, wh on the other hand those cities which had adopted the princip of interception traps were often quite the reverse, and of d ease a great deal was found among the inhabitants who ha pened to live in the modern built houses, where the obstru tion system had been installed; "and this, in spite of the fa that the same towns often spend large sums of money in flus ing the drains and artificially ventilating the street sewers, thing which is never necessary if the sewers are laid do properly and the right unobstructed system is adopted.

Dr. S. H. DURGIN, health officer of Boston, Mass., contende that bad gas-fittings are more dangerous to health than ba plumbing. He said that better regulations are needed to in sure the proper fittings to prevent the escape of illuminati gas. He claimed that there is no scientific basis for conside ing sewer gas an active poison or a serious source of danger t human life. On the other hand, he said illuminating gas co tains a most active and deadly poison. No deaths are reporte as resulting from sewer-gas poison, but many are reported a caused by illuminating gas. In the last five years, 169 death from it have occurred in Boston. He said the medical profe sion believed that many deaths were caused by slow poiso from illuminating gas, but they were not so entered in th public records. Health officers, he insisted, should pay a much attention and teach the danger from coal and illumina ting gases circulating in the atmosphere of houses as they d the danger of the escape of sewer gas. In 1897 an act of th legislature of Massachusetts was obtained which requires a persons who desire to engage in or work in the business of gas fitting in the city of Boston, either as an employer or journey man, to be examined by a board established for that purpose and if found to be competent to receive a license as a maste or journeyman gas-fitter. The act authorized the board o health and building commissioner to make and enforce regula tions for all materials used and work performed in gas-piping and gas-fitting; provided for the appointment of a corps o inspectors, who examine for approval all new work in construc tion and repairs; authorizes the board of health to inspect th gas fixtures and appliances in any building, and to make such requirements relating thereto as it deems the public health requires, and the owner of such building must comply with such requirements.

As a result of an investigation, it was found that 89 per cent of Boston's houses showed from two to eleven leaks in each house. Out of 153 houses examined 137 had defective pipes and only 16 were found absolutely free from defects.

The discussion was further participated in by Dr. Chapin o Rhode Island, who inquired if any deaths were positively known to be caused by leaking gas-pipes; by Dr. Schwartz secretary of the State Board of Health of Rhode Island; by Medical Director Gihon, U. S. N., who asked Mr. Hughes if he believed that gas leakage could ever be attributed to fine holes in old gas-pipes concealed between floors and ceilings o inside walls, to which Mr. Hughes replied that in thirty years experience he had never known an instance of perforated pipes, but that leakage was always from imperfect connec tions; by Dr. Wright of Connecticut; by Dr. Woodward o Washington, D. C., and by Dr. Mitchell of New Jersey.

Dr. F. X. VALADE, chief analyst, of Ottawa, Ont., read a paper on

THE ADMINISTRATION OF THE ADULTERATION ACT IN CANADA.

He reviewed the Dominion act in regard to adulterated foods, etc., and said that the analytical department is now in good working order. Each district has it analyst and the analysts are supplied with samples of food products by food inspectors. The samples are analyzed and the results with the names of the persons from whom they are obtained announced. He spoke of the adulterations of milk and said that grave results followed the adulteration of this staple article of food. Lead poisoning results, he said, from the use of lead in the manufacture of house utensils, and in tins used to preserve foods. Rouge is often adulterated with lead, and as it is in a condition to be easily assimilated, lead palsy results from the use of the rouge.

He considered the combination rubber and tin stoppers used in bottles containing carbonated waters most dangerous. The

est dangerous and shameful adulterations are the following: offee is adulterated by the process of washing, coloring and ying off in centrifugal machines with sawdust; the furrows the berries become filled with wood powder, making them a e white. Weak milk is richly colored with annatto, saffron, rmeric and marigold flowers. Saffron is adulterated with al tar. Coal tar is adulterated with 75 per cent. of sodium lorid, and here the chain ends, for salt is too cheap to require dulteration. Cayenne is sometimes too hot; red ochre, vene- an red or brick dust corrects that, and a little salt to make it sty completes the trick. Honey and cocoa are adulterated; eomargarin is palmed off after being colored with azo dyes nd orange red. Musk deer sacs are often opened and filled ith stones, bits of metal and brown earth.

Dr. JUAN BREÑA of Zacatecas, Mexico, presented "Rough Notes on the Etiology of Typhus Fever." It was an admirable nd exhaustive inquiry into the subject, emphasizing the value f sanitary considerations in preventing the development and pread of this disease. As the individual who cultivates leanliness of person and dress, tranquillity of mind and, in a ord, devotion to the Goddess Hygeia, bears within himself a hield which protects him to a certain extent from infection, o do collective bodies of individuals who enjoy air, light, bundance of water, a fair amount of sunshine, good drainage, tc., represent ground but little fertile for the development of yphus. It would be well if we could accept the theory which ttributes the generation of that fever which from time to ime plunges us, especially in Mexico, into mourning to the tagnation of organic matter in a state of putrefaction or to hat train of misfortunes following on poverty."

The report of the committee on

CAR SANITATION.

was presented by the chairman, Prof. S. H. WOODBRIDGE of Boston, Mass., which was read by Dr. J. N. HURTY of Indiana. Professor Woodbridge's report attracted the closest attention of the members for its admirable presentation of the subject of heating and ventilation of railway cars, and was an unusually acceptable communication, as the information given was in effect the record of a victory won by this association through this committee after a number of years' work, in inducing several of the big railroads in the United States to adopt sanitary arrangements in the running of their cars. Letters from various railroad officials were given, stating their intention to reconstruct all their cars so that cleanliness would be a most important feature. The author referred to sanitary precautions already adopted by the railroads in Indiana, where the interiors are so constructed as to prevent as much as possible dust lying in the spaces in the cars. He outlined two systems of ventilation in use in two United States railroads. In the Pennsylvania Railway system of ventilation of cars, air is drawn from outside the car through ducts, is then passed over steam radiators between the floors and then introduced into the car under the seats. This avoids warming over and over the dead air in the car. The bad air goes out through openings in the roof. The Big Four Railway system of car ventilation is to draw out the bad air from near the floor through ducts between windows in the walls of the car. Pure air is introduced from outside by ducts with filters at the ends of the coaches. This pure air is warmed as it enters by being passed over steam pipes. The Big Four railway officially promises to hereafter construct all passenger cars according to the latest sanitary requirements. The thorough system of cleaning and disinfection of cars by the Big Four was warmly approved by the writer.

Dr. GREGORIO MENDIZABAL of the City of Mexico read a paper "On Diseases of the Skin and of the Hairy Scalp, Which are Commonly Transmitted by Contagion at Schools; Ways of Preventing It." After paying tribute to the benefits that mankind has already received through following the wise councils of hygiene, the author suggested, respecting the prevention of communicable dermatosis, that medical inspectors for schools should be appointed and children be required to furnish clean bills of health before they are admitted to schools. Inspection should be extended to private schools. The parents of poorer children should be furnished with remedies to cure their diseased children. The diseases he had found most frequently are psoriasis, scurf, tricophicies, fabus, all shown to be transmissible and repugnant and dirty, although not fatal.

The remainder of the afternoon and up to a late hour was entirely occupied with the subject of "Disinfection and Disinfectants," beginning with a preliminary report of the Committee on Disinfectants by its chairman, Prof. FRANKLIN C. ROBINSON of Bowdoin College, Brunswick, Me., followed by papers on "Methods of Testing Disinfectants," by Dr. WYATT JOHNSON, Montreal; Dr. F. G. NOVY, Lansing, Mich.; Dr. HIBBARD W. HILL, Boston, Mass. "Methods of Using Disinfectants:" *In Cities*, Dr. ADOLPH GHERMANN, Chicago; *In Hospitals*, Dr. J. J. MCKENZIE, Toronto, Ont.; Dr. CHAS. D. SMITH, Portland, Me.; *In Quarantine Work*, Dr. F. MONTIZAMBERT, General Superintendent of Quarantine of the Dominion of Canada.

The lateness of the time prevented discussion of this most interesting and valuable group of papers, which fitly concluded one of the most successful day's work in the history of the association.

A resolution offered to create a special committee to secure co-operation in bacteriologic investigations in the three countries represented in the association was referred to the executive committee.

FOURTH DAY—FRIDAY, SEPT. 30, 1898.

MORNING SESSION, 10 A.M.

The president, Prof. CHARLES A. LINDSLEY in the chair.

After the final announcement by the chairman of the local committee of arrangements, Dr. JOHN SWEETLAND of Ottawa, of post-adjournment courtesies tendered by the Minister of Agriculture of the Dominion Government, the secretary, Dr. PROBST, presented the final report of the executive committee, recommending:

1. The adoption of Dr. Horlbeck's resolution to urge the establishment by the National government of a leper-house.

2. The appointment of a special committee, as suggested by Dr. Wyatt Johnson of Montreal, for co-operation in bacteriologic investigation by colleges, individuals and committees engaged in this work.

3. The continuance of the committee on Public Health Legislation, of which Dr. Henry P. Wolcott of Cambridge, president of the State Board of Health of Massachusetts, is chairman; that it be urged and required to make every possible effort to promote the purpose for which it was created; and that the American Public Health Association hereby reaffirms its opinions of the advisability and necessity for the establishment of a National Board or Bureau of Health in the United States.

4. The adoption of the resolution of Dr. Wright proposing a special committee of five, consisting of the president, secretary, treasurer and two others to consider the advisability of substituting for the annual volume of transactions a monthly or other periodical devoted to sanitary matters; in all which the association by vote concurred.

On motion of Dr. SUITER of Herkimer, N. Y., the association reconsidered its action of yesterday, declaring it inexpedient to adopt the resolution offered by him advising State, municipal and town authorities to enact laws interdicting the sale of long rubber-tube nursing bottles, and upon his modification of his resolution making it expressive of the opinion of the association that the long rubber-tube nursing-bottle was a positive menace to the health and the cause of much mortality of infants, it was unanimously adopted. It was explained on the part of the executive committee that its former action in declining to recommend the effort to obtain legislation was because of the belief of its members that no educated physician would permit, and no intelligent and competent mother use, one of these bottles, which the veriest tyro in sanitation could not but condemn, but as its action has been misunderstood, as was shown by conspicuous head-lines in the newspapers announcing that "the association had shut down on the effort to abolish the rubber-tube nursing bottle," and that "the rubber-tube bottle had gained a victory over its opponents," and lest these assertions, if uncontradicted, might be taken advantage of for advertising purposes by the unscrupulous makers of these bottles, it was considered proper that the association should assert, notwithstanding the elementary and self-evident nature of the proposition its, unanimous condemnation of their use. As an evidence of the universality of this use, Dr. WENDE, the health officer of Buffalo, who has succeeded in making their sale impossible or punishable in that city, exhibited three long-tube bottles which he had bought in the first three drug stores in Ottawa at which he had applied for them.

Three additional applicants for membership were reported by the executive committee and elected.

Medical Director GIHON, U. S. N., read a letter he had just received from Dr. JÉSUS E. MONJARÁS, president of the Council of Health of San Louis Potosi, regretting his enforced non-attendance at the meeting by reason of a recent domestic bereavement.

On motion of Dr. GIHON, the secretary was directed to telegraph on the part of the association to Dr. JAMES F. HIBBERD of Richmond, Ind., one of its oldest, most zealous and most honored members, its sincere sympathy and regret that he had

been prevented by illness from being present as he had invariably been at previous meetings.

On motion of Dr. DURGIN of Boston, Mr. Mitchell of New Jersey was appointed to draft a suitable memorial expressive of the regret of the association at the recent death of Dr. J. BERRIEN LINDSLEY of Nashville, Tenn., an original member and the long-time treasurer of this association, and to place on record in its Transactions its appreciation of his personal character and disinterested and zealous service in the work of this association and the cause of sanitation.

Dr. IRVING A. WATSON of Concord, N. H., chairman of the auditing committee reported that careful examination of the accounts of the treasurer showed that they were correct in every respect.

Mr. CROSBY GRAY of Pittsburg, Pa., secretary of the Advisory Committee, reported the following nominations for officers of the association for the year 1898-'99:

For President: Dr. GEORGE H. ROHÉ, of Baltimore,, Md.

For Vice-President: Dr. JÉSUS E. MONJARÁS of San Louis Potosi, Mexico.

For Secretary: Dr. CHARLES O. PROBST of Columbus, Ohio.

For Treasurer: Dr. HENRY D. HOLTON of Brattleboro, Vt.

For Elective Members of the Executive Committee (for two years) Dr. H. M. BRACKEN, of Minneapolis, Minn.; Dr. IRVING A. WATSON of Concord, N. H.; Dr. FRANKLIN W. WRIGHT of New Haven, Conn. (To fill a vacancy for one year) Dr. GREGORIO MEDIZABAL of the City of Mexico, Mexico.

The Advisory Council recommended that the twenty-seventh annual meeting shall be held at Minneapolis, Minn. All which was by vote of the Association unanimously adopted and the officers unanimously elected. The president then announced the names of chairmen and members of committees, of which there are twenty-one.

Papers on "The Diptera from a Hygienic Point of View," by Dr. Ramon Ramirez of Mexico, D. F., and on "The Spread of Typhoid and Dysenteric Diseases by Flies," by Dr. M. A. Veeder of Lyons, N. Y., were then read, and discussed by Dr. Gardner T. Schwartz of Providence, R. I., and Dr. J. N. Hurty of Indianapolis, Ind., who related an instance within his own experience of the spread of dysentery at Tipton, Ind., from a patient whose injecta, it was discovered on subsequent investigation, had been thrown into the back yard, and where the only possible hypothesis as to the spread of the dysentery was that it had been propagated by flies, which were then especially numerous. The views of the authors of the papers, Drs. Ramirez and Veeder, were quite in accord with the reputed opinion of the military committee of investigation appointed by our ex-president, Surgeon-General Sternberg, U. S. A., Majors Vaughan, Shakespeare and Reed, who are alleged to have declared flies largely responsible for the distribution of typhoid germs in our military camps.

The following reports of special committees were then presented and read: Report of the committee on Transportation of Diseased Tissues by Mail, presented by the chairman, Dr. E. P. Lachapelle, president Provincial Board of Health, P. Q.; report of the committee to consider and report upon some Method of International Arrangement for Protection against the Transmission of Infectious Diseases, presented by Dr. Frederick Montizambert, chairman, general superintendent of quarantine of the Dominion of Canada; report of the committee on Animal Diseases and Animal Food, presented by D. E. Salmon, D.V.M., chairman, chief of Bureau of Animal Industry, Department of Agriculture, Washington, D. C.; report of the committee on The Duties and Responsibilities of the Healthy Man for His Own and Others' Health, presented by the chairman, Dr. Charles N. Hewitt, Red Wing, Minn.; report of the committee on public health legislation, presented on the part of the chairman by Dr. Henry P. Wolcott, president of the State Board of Health of Massachusetts, by Dr. U. O. B. Wingate, health officer of Milwaukee, Wis.

The following papers were then presented: "An Epidemic of Diphtheria traced to an Infected Milk Supply," by Dr. Benjamin Lee, health officer of Philadelphia, Pa.; "Preventive Antirabic Inoculation Service in Mexico," by Dr. Eduardo Licéaga, president Superior Board of Health, City of Mexico; "Report of Some of the Most Important Papers Presented at the Fourth Congress of Tuberculosis, held in Paris, July 27 to Aug. 4, 1898," by Dr. E. A. de Schweinitz, director Biochemic Laboratory, Bureau of Animal Industry, Washington, D. C.; "The Sanitary Treatment of Inebriates," by Dr. A. M. Rosebrugh, secretary Prisoners' Aid Association, Toronto, Ont.; "Garbage Reduction by Steam," by Dr. M. A. Veeder, Lyons, N. Y., and Mr. J. L. Richards, sanitary engineer, Elizabeth, N. J.; the last eliciting discussion by Dr. de Schweinitz of Washington, D. C.; Dr. Probst of Columbus, Ohio, and Mr. Rudolph Hering, C. E. of New York City.

The customary resolutions of thanks were then adopted for courtesies received from the Dominion Government, especially the Hon. Sidney Fisher, minister of agriculture; the mayor, municipal officers and citizens of Ottawa; the indefatigable chairman, Dr. John Sweetland, and his associates on the local committee of arrangements; the ladies of Ottawa, the proprietor of the Russell House, the railroad officials and the members of the press.

The two senior ex-presidents, Medical Director Gihon, U. S. N., and Dr. Durgin of Boston, were then appointed to conduct the president-elect, Dr. George H. Rohé of Baltimore, to the chair, and after appropriate remarks by himself and the retiring president, the latter declared the Association adjourned to meet at Minneapolis at such time in November, 1899, as the executive committee may appoint, thus concluding one more of the successful and satisfactory assemblies of this flourishing body. The majority of the members remained after the formal adjournment to attend a garden party at the Experimental Farm tendered by the minister of agriculture, Hon. Sidney Fisher, and voluntarily added another day to their sojourn in this attractive and hospital capital of the Dominion, where besides the courtesies of the government and municipal authorities, they were treated to a week of the most delightful weather conceivable. The unparalleled invigorating climate determined the American and Mexican members, who contemplate attending the Third Pan-American Medical Congress at Caracas, Venezuela, to insist that Ottawa shall be the site of the Fourth.

Chicago Medical Society.

At the clinical meeting, October 2, in the absence of the president, Dr. ARTHUR D. BEVAN, Dr. GEORGE W. WEBSTER presided.

Dr. HOMER M. THOMAS reported a very interesting and instructive case of aortic aneurysm, and exhibited the patient.

Dr. WEBSTER exhibited, in connection with Dr. Thomas' case, a pathologic specimen from a similar case of aortic aneurysm.

Dr. I. A. ABT described an interesting case of rachitis that came under his observation, and exhibited photographs and skiagraphs of the case.

Dr. CARL BECK exhibited a little girl, 14 years of age, upon whom he had operated, showing the results of a rhino blepharoplasty, the patient having undergone eight operations in all. The second case was one of partial rhinoplasty. The third was another nose case, but in which the destructive process was very extensive, due to erysipelas. The fourth was a case of arthroplasty, the ankylosis of the joint being due to tuberculosis.

Dr. H. W. DAVENPORT reported an interesting case of artificial self-retaining maxillary arch and floating palate in a boy of 10 or 12 years of age. Five surgical operations had been previously performed by different surgeons for the closure of the cleft without success. The boy removes and replaces very easily and dexterously the artificial palate.

Dr. O. T. STEIN reported a case of caries of the skull due to syphilitic infection.

Dr. C. L. LOCKWOOD presented a case which beautifully illustrated the union of old fracture by percussion-irritation. He noticed a marked improvement at the end of two days from this method of treatment, and in about two weeks there was almost complete union.

Dr. CHARLES E. PADDOCK reported a case of placenta succenturiata.

Dr. GEORGE W. JOHNSON detailed five cases of congenital with acquired hernia.

Dr. EDWARD J. BROUGHAM reported a case of carbolic acid gangrene. The patient sustained a slight injury with a knife at the base of the phalanx and fifth metacarpal, and three days after the application of 3 per cent. carbolic acid gangrene occurred.

Washington Obstetrical and Gynecological Society.

The 285th meeting of this society was held on the 7th instant. The President, Dr. T. C. SMITH, read his annual address, entitled

WHAT HAVE YOU TO OFFER THAT IS BETTER?—A QUESTION FOR CRITICS.

He referred to the attitude of the conservative writers, both in medicine and surgery, and drew attention to the injury they did by criticising unfavorably all operative procedures of others, thereby tending to thwart medical process. He showed how, in early medical history, these conservatives and critics had assailed the work of Ambrose Paré, Genner, McDowell

d Battey. He extolled the language of Joseph Price, who d "the aim and effort should always be to bring the patient o as normal a condition as possible, and make very improb- le the necessity for a repeated operation"; and again, "com- ete work offers the best chance for complete recovery in out all cases." He admitted that some surgical operations d been done which should have been left undone, so far as e existing state of affairs was concerned, but went on to say at "even these, in the early state of the science, had been neficial in teaching lessons from which the modern science s been developed." He referred to hysterectomy for fibroids d its early mortality, and compared it with the present death- te. He referred particularly to the unwise criticisms of our associate, Dr. Joseph Taber Johnson, during his early work d asked of the critics what they had to offer as a substitute at is better than the treatment pursued by the surgeons. He ferred to the present status of the treatment of unavoidable portions, tubal diseases and extra-uterine pregnancy, and owed how early adverse criticism had been largely respon- ble in delaying the acceptance of the modern and successful eatment of these conditions. In conclusion he said: "The rgeon who performs an operation for relief of disease is titled to just and fair treatment in the matter of criticism of is work. I believe he never removes more than he thinks the se demands, and that he is a better judge of the necessities f the case than the critic who sits at his desk and shoots his rows, regardless of the harm he may do." He said: "The itic is an obstacle in the way of progress, and while advancing thing himself, does not want any one else to do that which dvances scientific medicine and surgery. In medicine and rgery progress has the right of way, and he who would im- ede its advance will be inevitably side-tracked. Permit me hen to say to those who find pleasure in disparaging the work f others by unfriendly criticism, when you have concluded our strictures on operations devised by faithful men, be kind nough to tell us, in the way of treatment, what you have to ffer that is better."

At the conclusion of his remarks a vote of thanks was ten- ered him, both for his paper and the faithful and efficient anner in which he had conducted the office of president dur- ng the past year.

Denver and Arapahoe Medical Society.

At the meeting held October 11, Dr. Wm. P. Munn read a paper on

THE CHOICE OF ROUTE IN OPERATION OF THE BLADDER.

He said in part: The bladder may be reached for purposes of surgical treatment by the following routes: 1. By the cath- eter, sound, cystoscepe or lithotrite through the urethra, both in the male and female. 2. In the female, by a cutting opera- tion through the anterior wall of the vagina. 3. In the male by aspiration and incision through the rectum. 4. In both sexes by aspiration or incision through the anterior abdominal wall above or posterior to pubic bone. 5. In both sexes, by intraperitoneal incision or aspiration or by urethral catheter- ization when a prior operative procedure has laid open the ab- dominal cavity. 6. In the male, by perineal incision which may be directly into the bladder or by prior opening into the urethra. After a careful theoretic consideration of the value of the different routes coupled with a larger clinical experience, the author has arrived at the conclusions that the perineal operation gives ready access and sufficient opportunity for op- portunity for operative attack in the following cases: 1. For- eign bodies in the fairly normal bladder; best, surest, safest route. The incision is at the most dependent portion of the bladder, and therefore, nearest to the usual location of stone or any other foreign body; it leaves an open avenue for drainage; the opening is made with the least possible disturbance of the bladder structures, and, lastly, the wound heals with rapidity, leaving no annoying sequelæ. 2. In a moderate percentage of instances of enlarged prostate. 3. Single polypus. 4. For sin- gle exploratory incision no other route is justifiable. 5. The prolonged drainage. 6. In dealing with large growths the peri- neal opening should precede and be used in conjunction with the suprapubic opening to facilitate the manipulations and to permit of proper drainage. As a formal conclusion it may be stated that the suprapubic operation is not often required as a primary surgical procedure, but that its greatest usefulness is when it is resorted to either as a secondary measure or in con- junction with the perineal operation.

Dr. C. A. Powers, in discussing the paper, expressed him- self in favor of the crushing operation, especially in children. He praised, highly, the procedure of distending the bladder with air, especially in cases where the bladder is greatly con- tracted.

Dr. Munn, in his concluding remarks, gave the statistics in his own practice: 47 perineal sections with 3 deaths; 9 supra- pubic sections with 3 deaths.

Dr. Wm. C. Mitchell read a paper on "The Gonococcus," which was discussed by Drs. Munn, Stover, Whitney and Axtell.

PRAGTICAL NOTES.

Lymphatic Apparatus of the Uterus.—Peisser has found the lymphatic glands affected in more than 50 per cent. of the cases of carcinoma colli uteri he has examined. This propagation occurs early, while the carcinoma is still operable and the lig. lata are supposed to be still "free." The regional glands should therefore be removed with the neoplasm, which can not be accomplished per vaginam, and renders the abdominal route imperative. He has established by means of injections that the glandulæ hypogastricæ and sacralæ are the first stations of the collum uteri system.—*Munich Med. Woch.*, from *Ztft. f. Geb. u. Gyn.*, xxxix, 2.

Protargol in Ophthalmia.—Darier considers protargol very valu- able in acute catarrhal conjunctivitis, which it cures in three days, and also in purulent gonococcus, which it cures in from eight to twenty days. He touches the inflamed suface with a solution varying from 20 to 50 per cent., according to the severity of the case. In a collyrium the dose is only 5 per cent. Protargol (combination of silver with a protein base) is not irritating nor caustic like nitrate of silver. Furst has pro- tected infants from a maternal gonorrhea with a 10 per cent. solution without the slightest irritation to the eyes.—*Bulletin de l' Acad. de Méd.*, August 23.

The Abuse of Cocain.—Scheppegrell (*Med. News*, October 1), writing on "The Abuse and Dangers of Cocain," attributed the establishment of the cocain habit, in the majority of the cases, to the prescription of the physician, and believes that it should never be prescribed for the patient's use. He has found a peculiar phase evident in New Orleans in the contraction of the cocain habit by the negroes, a few crystals of the drug being snuffed into the nostrils for its exhilarating effects, phys- ical and mental wrecks resulting. He believes the druggist should be compelled to restrict the sale of this as well as of other toxic drugs to the prescription of the physician,

Pernicious Anemia of the Puerperium.—Vinay considers every remedy injurious except arsenic, and to avoid the almost inevit- able gastric and local disturbances, he prefers the rectal to the gastric or hypodermic method of administration. Large injec- tions produce intolerance, and he never exceeds five grams. His formula is: four grams Fowler's solution to fifty-six grams aq. dest. The injections are made morning and evening for four days, and then three times a day. In very severe cases he increases the proportion of arsenic: five grams to forty-five grams aq. dest.—*Médecine Moderne*, No. 54.

Hot Air as a Hemostatic.—The jet of hot air from a Holländer apparatus directed upon the bleeding surface of a kidney, liver or severed blood-vessel, will arrest the hemorrhage by the for- mation of an eschar commencing around the edges and gradu- ally spreading over the entire surface, mechanically checking the flow, in experiments on animals, and Schneider concludes that it would be equally effective on man. The heat is only 39 degrees at 5 mm. from the apparatus, and hence is not suffi- cient to injure the organ. He found steam less effective, and less convenient, for several reasons, masking the field of oper- ation, etc.—*Semaine Méd.*, August 3.

Progressive Pernicious Anemia.—E. Grawitz relates a number of observations in the *Berlin klin. Woch.*, No. 33, which demon- strate the efficacy of dietetic treatment with an early diagnosis. In some cases repose in bed is the first requirement. Loss of appetite is restored by treating the usual constipated condi- tion; disturbances in the gastric secretions are treated by

stomachica of all kinds and a mixed diet. Treatment in a sanitarium is often indispensable. He considers iron absolutely contra-indicated in the first stages of treatment. Arsenic in cautiously progressive doses, and quinin, are much more appropriate. The effect of transfusion of blood is merely temporary.—*Munich Med. Woch.*

Surgical Treatment of Pericarditis.—Brentano has reported five patients treated by opening up the pericardium, with resection of the ribs, which he considers necessary, as a single puncture will scarcely ever allow the evacuation of the entire amount of pus, and incision without the preliminary resection is much more dangerous and less effective. Pericardiotomy only promises success in acute cases. Two cases of suppurated pericarditis ended in death; two cases of long-existing serofibrinous pericarditis were only temporarily improved; but the fifth case was cured—a 10 year-old girl—pericarditis consecutive to rheumatic endocarditis.—*Deutsche Med. Woch.*, August 11.

A Valuable Disinfectant.—The disinfectant recommended by Krönig and Paul, discovered in the course of their painstaking tests of various disinfectants by the light of the new physicochemic theories of solutions and electrolytic dissociations, is a mixture of potassium permanganate and hydrochloric acid. This solution kills the most resistant spores from extremely virulent anthrax bacilli in a few minutes, while it is cheap, non toxic, convenient and fully equal to a 5 per cent. solution of sublimate. They ascribe its remarkable microbicidal power to its extremely active ions. As a disinfectant for the hands, for instance, they recommend the formula: 45 c.c. of pure hydrochloric acid; dilute with 1600 c.c. of water; add 500 c.c. of a 5 per cent. solution of potassium permanganate. The solution also stains the skin, but the latter stain is easily removed, with a 1.3 per cent. solution of oxalic acid.—*Ann. de la Soc. Méd.-Chir. de Liège*, June, from *Ztchft. f. Hyg.*, xxv.

Suprapubic Cystostomy for Prostatism.—Poncet has performed this operation 114 times, with 27 deaths, since he proposed it in 1889. The prognosis depends almost entirely upon the condition of the kidneys and other organs. It differs from cystotomy, as the lips of the bladder are sutured to the edges of the incised abdominal walls to form a permanent meatus. It is especially adapted to incurable urinary affections for which he urges its general adoption, recommending an early operation. It has again and again restored elderly men to health, when apparently in the last stages of urinary intoxication. A typic observation is that of a blacksmith cystostomized six years ago, who retains his urine three to five hours and emits it in a stream 30 to 40 centimenters in length, through the hypogastric meatus. Natural miction has never been re established, as the prostate has remained enormous, fibrous and knobby. Another case, 87 years of age, in acute urinary intoxication with temperature at 40 degrees C., continuous delirium, etc., was relieved at once with cystostomy, and a couple of months later natural miction was restored; the patient is now in good health, a year later. The artificial meatus becomes a fibroelastic ring, often quite thick, and lined with mucosa throughout. Out of 34 patients who have retained their new meatus, there is continence in 14 cases; partial continence in 7 and incontinence in 13.—*Bulletin de l'Acad. de Méd.*, August 8.

Eighty-Nine Symphysiotomies.—Dr. Pinard of the Baudelocque-Clinic at Paris, has issued a report concerning seven operations by symphysiotomy in 1897, making a grand total of eighty-nine such operations performed in that clinic during the six years, 1892-97. Six of the cases were examples of rickety, flattened pelves, while the remaining case was one of a Naegelé oblique pelvis. Of the mothers, two were primiparæ and five multiparæ; of the former one died from sepsis and acute albuminuria, the latter complication being present upon her admission to the clinic. All the children were born alive, three being delivered by forceps and four by version. In one patient the operation was performed for the second time, her second pregnancy having been terminated by symphysiotomy in 1892. At the first operation a tear occurred through the anterior vaginal wall into the operation wound, and at the second operation a similar accident happened in spite of every care being taken to prevent it. The urethra and bladder, however, escaped injury and the wound healed well. In the event of this patient again becoming pregnant Pinard considers that Cæsarean section would be indicated on account of the cicatricial tissue present in the anterior vaginal wall. That symphysiotomy may produce some permanent enlargement of the pelvis, seems to be shown by the fact that four of the patients delivered spontaneously during the year had previously had symphysiotomy performed upon them; the report is of interest as enabling us to watch the progress of the operation. Pinard has no hesitation in saying that in any future history of symphysiotomy a very important place will have to be assigned to the work done at his clinic.—London *Lancet*.

Extirpation of the Rectum.—For inflammatory strictures this is not proving as successful as anticipated. A study of 69 cases in the *Presse Méd.* of September 14, shows that 10 died from the operation; 4 in the course of the year, from pneumonia, pulmonary tuberculosis, prolonged suppuration or puerperal infection from the sacral fistula. The stricture recurred in 12 out of 24 cases followed over a year. Incontinence was almost the rule, except in very constipated patients. The suppuration was almost certain to persist, and with the Kraske operation the chances were in favor of a sacral fistula (7 in 15 cases.) A number of patients have incontinence whenever the matters are soft, and obstruction when they are hard, with a constant flow of pus. The article concludes with a plea for colotomy and an artificial anus, easily kept clean and the only chance for the inflamed rectum to heal spontaneously, when natural conditions can be restored. "When dilatation, combined with antiseptic lavages of the rectum, does not produce the desired effect, temporary or permanent colotomy is the best palliative. Extirpation has proved impotent to cure and should no longer rank as an approved radical method." . . . "Even in tuberculous lesions the suppression of local irritation by colotomy favors the spontaneous cure of the torpid lesions."

Panas' Total Combined Keratectomy.—This operation avoids all the dangers and deformities of enucleation. It is especially adapted to chronic glaucomatous and painful eyes, as it ends the pain and glaucomatous condition entirely and permanently. It leaves a round, smooth stump, fully three-fourths the size of the normal eye, movable and unatrophied, over which the artificial eye-cap fits so perfectly that its artificiality is scarcely perceptible. The fears of sympathetic ophthalmia are exaggerated in these days of asepsis. He has only encountered one or two cases in the last ten thousand at the Hotel Dieu. The operation as he has performed it on 200 patients, with or without staphyloma, consists in first passing a Reverdin needle through the sclero-corneal limbus behind the iris and lens, carrying a silk thread, which is left for the first stitch of the suture and tied if the vitreus shows a tendency to escape. The cornea is then removed with a Graefe knife held flat, cutting it into fifths and snipping off the last fifth with the scissors. The iris is removed with the cornea if adherent, otherwise he performs iridodyalisis. The lens is then removed with the spoon, the escape of the vitreum being carefully prevented. The stump is sutured with a couple of stitches in the sclerotic and rounded off. The surface is rinsed with a solution of mercuric iodid, dusted with iodoform and a roll of iodoform gauze applied with a dry cotton bandage outside. The threads are removed the seventh day. The danger of hemorrhage is very slight—3 cases in 200. If it occurs, the eye can be enucleated or eviscerated. The latter leaves a fairly goodly stump. He mentions in his communication to the Académie de Médecine (*Bulletin*, Augut 23), that Pritchard was the responsible author of enucleation, but that we have now progressed beyond it. Keratectomy, effective and harmless, should take its place in many cases—another forward stride in ocular surgery.

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SATURDAY, OCTOBER 22, 1898.

THE POWER OF EPITHELIUM TO LIVE OUTSIDE OF THE HUMAN ORGANISM.

It is a well-known fact that when general death of the body occurs all its cells do not at once die. Every surgeon knows that transplantation with bits of skin that have been removed from the body for some time give very good results. Pieces of skin from dead bodies have been observed when placed on wound surfaces to form substantial and permanent cutaneous covering. WENTSCHE transplanted skin successfully after having kept the pieces for twenty-four to forty-eight hours in physiologic salt solution. GARRÉ, who examined into the histology of the healing process of transplantation, found that large cell masses could maintain their life and power of proliferation for more than forty-eight hours, although they were simply made to adhere to a wound surface and were without demonstrable blood circulation.

Recently LJUNGGREN[1] undertook a series of experiments for the purpose of further studying the faculty of epithelium to preserve its vitality outside of the organism, especially in relation to transplantation. He carefully preserved more than forty fragments of skin, most carefully disinfected, in glass tubes containing sterile ascitic fluid, for from two days to six months. At different intervals microscopic sections were studied with a view to ascertaining the histologic condition of the pieces; to his great surprise he found that even for as long as three months the epithelial cells on the deeper layers showed well-stained nuclei and a good protoplasmic structure.

[1] Nordiskt Medicinskt Archiv, 1892, Häft 2.

LJUNGGREN made twenty-two efforts at transplantation with these pieces, and in sixteen instances the immediate results seemed to be wholly successful; in three cases, however, the grafts died, in two they were absorbed by the surrounding granulations, but in eleven instances permanent skin was formed. The longest time that these pieces had been kept in sterile ascitic fluid was one month.

Finally, in order to prove definitely that the epithelium of the transplanted preserved epidermis played an active part in the growth of new skin and acted not merely as protective coverings under which cells from the epidermis at the margins of the wound could creep, he placed some of the preserved pieces directly upon a muscular surface and 10 cm. from the cutaneous margins, that is at such a distance from the skin that its cells could not possibly become mixed with those transplanted; some time after the transplantation he removed small pieces for microscopic examination, and it was found that there had taken place a marked proliferation of epithelial cells with numerous figures of nuclear division. The epithelial cells not only grew over the surface of the wound but also showed a tendency to penetrate into the granulation tissue in a way that recalled the appearance of the development of a beginning carcinoma.

These observations, although not by any means sufficient to permanently decide the interesting biologic problems involved, nevertheless seem to us to indicate the value of further and more extended and diversified experiments along these lines.

EOSINOPHILIA.

When it was found, not a great many years ago, that the presence of eosinophilic cells in the blood was not only not a characteristic symptom of leukemia, but that these cells were a constant constituent of normal blood, interest in them was to a large extent dissipated. Only of late, since the findings of OSLER, THAYER and CABOT, of an enormous increase of these cells in the blood of patients afflicted with trichinosis, has anything like general interest been excited. But during this interval much work has been accomplished in blood histology and pathology, and not a few important points have been established as regards the eosinophiles. While the eosinophiles may be always found in the healthy circulating blood, yet their proportion to the various forms of white cells exhibits a considerable range, from one-fourth of 1 per cent. In infancy even this ratio may be exceeded, so that we must not look upon an eosinophilia at that period of life, unless very pronounced, as pathologic.

While no definite classification of the causes of eosinophilia can be attempted, yet it seems to be particularly liable to occur when there is some disease affecting the osseous structures, as in osteomalacia and bone sarcomata. It has been shown by NEUSSER and others that even when eosinophiles are very

scanty in the blood, they may exist in considerable numbers in the marrow of bones (and in other internal locations as well), and many have thought that their appearances in the normal circulating fluid is purely accidental. The very large proportion of these leucocytes in infant's blood may, as suggested by CABOT, have some connection with the very rapid progress of growth in the osseous structures at this time of life. In diseases of the spleen, many skin troubles, and affections involving the sympathetic system and the organs of generation, there may be eosinophilia. Having determined by a differential count that this change does exist, it may be of aid to us in various ways: for instance in hesitating between a tumor of one of the genital organs and a tumor of another part of the body, from what we have said before, an increase in the eosinophiles would favor the former; in a similar manner an eosinophilia in malignant disease would open the suspicion of involvement of bone either by direct extension or by metastasis.

As regards prognosis, eosinophilia can not always be looked upon as a bad omen. Even in such hopeless cases as leukemia, it is most conspicuous in the mildest type of the disease, the spleno-myeloginous; while in the other blood diseases, as pernicious anemia and chlorosis, it indicates a comparatively favorable course. Mention was made above of the presence of this symptom in trichinosis. In this disease the proportion of eosinophiles is largely in excess of that of any other disease as far as we now know. Indeed, in one of THAYER'S cases as high as 62 per cent. was noted during the course of the acute symptoms. In other cases in which tentative diagnosis of typhoid fever and malaria have been made, a blood count yielding an eosinophilia of 20 per cent. has changed the diagnosis to trichinosis, which examination of portions of muscle obtained by puncture has subsequently confirmed. In all these cases of trichinosis, it might be noted, a pronounced leucocytosis has always been present and the eosinophiles have gradually lessened with the disappearance of the acute symptoms.

HOMICIDE BY MICROBES.

The suspicional fear of the unknown which causes primitive races to believe that natural death can not occur, and that all deaths must be due to some malign influence, either supernatural or homicidal by poisoning, survives in this last phase among the English-speaking nations. From this comes the detective mania so often exhibited by the press and the practitioner of "crowner's-quest law," who have been ridiculed since the time coroners were originated by the Norman kings to secure forfeiture of goods of felons for royal benefit. (Green's History of the English People, Vol. i.) In English-speaking countries, the coroner, as a rule, true to the detective theories which have given him birth, generally chimes in with the press in its detective predilection for criminal accusation, in violation of the central principle of the English common law: that every crime must be proven beyond a doubt and that every circumstance that can be construed reasonably in favor of innocence must be so construed. As a result, whenever a supposed crime due to possible negligence by the paternal powers of the state ignorantly supposed to be present in English-speaking countries, occurs, the press and the coroner seek for a scapegoat, and generally find it in the long-suffering, public spirited medical profession. Denunciation of it does not affect any plutocratic "vested interest," as would denunciation of newspaper advertisers.

An illustration of the primitive epidemic terror anent poisoning and of the tendency last mentioned recently occurred in England. Sir JAMES CRICHTON-BROWNE, one of the English-speaking authorities on forensic medicine, delivered an address before the British Pharmaceutical Society, in which he stated that there were organic poisons known to physicians which could be used with impunity by any criminal so disposed. By keeping his own microbes, a connoisseur in poisons could, without the slightest fear of detection, slaughter hundreds of innocent persons. The statement of such facts was fully in accordance with the scientific principle that science, like fire, purifies everything, and that exact truth must always be known so that its effects can be fully guarded against. It is the unknown nature of poison which so frequently leads the poisoner to use arsenic and strychnin, when with a little knowledge he would be deterred from such crime by his certainty of detection. Without any regard for scientific truth for the medical profession or the interest of justice as already defined in the English common law, A. BRAXTON HICKS, coroner for the Kingston District, Surrey, England, in the course of an inquest held October 6, on the body of a country official who died from the effects of an untraceable poison, took occasion to score CRICHTON BROWNE'S lecture in the strongest terms. "Such talk," he said, "was not likely to further the ends of justice. Dr. BROWNE should have thought twice before disseminating such knowledge."

It is a singular illustration of coronorial tendency to omniscient ignorance of forensic medicine and its literature that Coroner HICKS, who has been in office many years, should have forgotten a famous typhoid epidemic at Buenos Ayres half a decade ago. This was distorted by the English-speaking press into a magnificent canard of poisoning by microbes. According to the newspaper story, a merchant of that city, being upon the eve of bankruptcy, invites all his creditors to his house, instructing them to bring their receipted accounts. Before proceeding to business the creditors are invited to a choice little dinner, including several kinds of liqueurs. The Creme-de-menthe is iced with cubes of frozen water containing typhoid and colon bacilli galore. Every

e of the creditors dies from typhoid fever before aving the house. The crime would never have been etected, according to the newspapers, but that the ntler ate one of the cubes. The little touch about stantaneous deaths from typhoid in this tale should ave destroyed its credibility. Despite this, it passed uster and was widely quoted in newspapers, and en callow medical journals, with comments on the creased powers given the poisoner by bacteriology, nd diatribes on the danger of such knowledge being ommunicated to the public. Coroner HICKS never ored the skilled "wanderer from the hackneyed limits f the actual," who did this tale evolve from the epths of his inner consciousness. OUIDA, in one of er splenetic, zoöphilic, anti-vivisection degenerate utbursts, wrote a most lurid novel called "Toxin," in hich a vivisectionist was led by experiments on ani-nals to the murder of human beings by the use of ypodermic injections of pathogenic bacteria and heir toxins. The picture of the vivisectionist phy-ician is a greater caricature of the scientific experi-menter, if that be possible, than WILKIE COLLINS' pium vision of the vivisectionist physician in "Heart nd Science." Another novel issued at an earlier ime, dealing with the same problem, did greater jus-ice to the physician. The use of pathogenic bacte-ia for homicidal purposes is by a degenerate, in con-rast with whom is a physician replete with the altru-stic impulses of the medical profession. This novel —GRANT ALLEN'S "Devil's Die"—was published nearly a decade before OUIDA'S "Toxin," which it eems to have suggested. It was widely reviewed in he newspapers of the English-speaking countries as well as in the literary reviews. The story reeks with bacteria. One very dramatic incident turns upon the attempt of the degenerate physician—who is a skilled bacteriologist—to poison his wife by the toxins and germs of cholera for the purpose of marrying a woman novelist. The details of the culture of bacteria are given. The methods of their hypodermic adminis-tration are fully described. The physician is a descendant of a cruel East Indian woman who starved a slave girl to death in a cellar beneath her own room so that she might enjoy her death-cries. The slave she regards as a rival claimant of the affections of her European husband. The character of her descend-ant, the physician, which is of the unstable degener-ate type, is chargeable, according to the "Devil's Die," to defective inheritance, not to scientific train-ing. In accordance with GRANT ALLEN'S notions of destroying race prejudice, an altruistic black Moham-medan physician of East India extraction is intro-duced as a foil to the degenerate before mentioned. The two are friends. Both work at the same prob-lems in bacteriology and biology. The first evidence of ruthlessness of the degenerate occurs when a sot-tish woman of the slums is brought to the hospital, badly injured by her husband for wilfully and bru-tally slashing her child with a glass bottle used as a candlestick. Together with the injuries she is suffer-ing from cholera nostra. Her death from the latter is essential to the demonstration of a bacteriologic theory which the degenerate has evolved. She rallies rapidly from the wounds and the cholera. The degen-erate, fearing for the success of his theory, sews a rub-ber bag in his coat, fills it with ice and, despite the precautions of the Mohammedan, who suspects him, succeeds in giving the woman a fatal chill with the hand which he has concealed in the ice bag. The woman dies. His bacteriologic theory is laid before the chief London medical society and endorsed by a thinly-veiled wraith of Sir WILLIAM JENNER. Unfor-tunately the husband of the degenerate's victim is indicted, tried and convicted of murder. Fortunately, however, for the degenerate, the trial violates the legal principle that the cause of death must be proven beyond a reasonable doubt. The husband is there-fore pardoned. The degenerate gains great praise for his theory and is made by Queen Victoria professor of etiology in a London university. He takes charge of the daughter of the murdered woman and is esteemed for his kindness to her. She grows up per-fectly devoted to him and learns the technique of bacteriology. On visiting Cornwall, the degenerate and his Mohammedan friend rescue the crew of a dis-mantled ship laden with cholera cases. The cases are taken into the house of a rector of the vicinity. The degenerate and the Mohammedan both fall in love with the rector's daughter. The Mohammedan, re-membering the slave girl's story, is apprehensive of the future of the rector's daughter in case she marries the degenerate. The marriage, however, occurs and proves happy for some years, when a female novelist appears on the scene, with whom the degenerate falls in love. Determining to kill his wife, he substitutes a watch-glass containing cholera germs and toxins for a similar glass supposed to contain morphin. The Mohammedan detects and changes the glasses which, however, are rechanged by the slum girl bacteriolo-gist before mentioned. The injection does not prove fatal, but the degenerate infects himself and dies from cholera. The story is so told as to show that the injection of pathogenic bacteria and their germs is not always a success from the homicidal standpoint.

The attempt by Coroner HICKS to limit the state-ment of scientific truth before a scientific body, can not but remind the student of forensic medicine that the position of the coroner as to forensic medicine is still as sapiently sciolistic as in the days of SHAKES-PEARE, who thus ridiculed it in Hamlet:

2d Clown.—But is this law?

1st Clown.—Ay, marry, is't, crowner's-quest law.

Disappearance of Tetanus.—Benicio reports two cases in which the tetanic syndrome vanished with the appearance of measles, and Costa another in which it vanished in the course of an attack of violent diarrhea.—*Brazil Méd.*, September 1.

"THE MOMENT AND THE ARTICLE OF DEATH."

It is not an uncommon practice in recent years for writers of fiction to attempt to portray the feelings of the dying in the supreme moment when the passage from the known to the unknown takes place, especially in case of violent or so-called instantaneous death. TOLSTOI, in his "Sevastopol," was perhaps one of the most successful in this line, but he has many imitators, some of them of very recent date in the literature incited by the recent military operations in Cuba and in the Soudan. It is a curious fact that none or almost none of these imaginative writers have made the feelings of the subject in the instantaneous forms of death to any extent painful. It would seem sometimes that the exaltation or intensification of feeling, the illusions of time and space that they describe were derived from some haschisch reminiscences, or something of the kind, rather than from any veritable experience narrated by those who have been very near and yet escaped death, the most obvious and natural source of data for building or modeling upon in such a matter. The popular notion, judging from the sensational fiction, which presumably meets it best, is apparently that there is a hyper-consciousness at the moment of sudden death, but that the element of coarse material pain is generally lacking.

There is a certain reasonable ground for this belief in such facts as those of electric shocks not apparently destroying consciousness but yet benumbing sensation, and other similar phenomena. The facts of sudden death, themselves, so far as we can appreciate them objectively, do not indicate any probability of serious suffering or even of retention of any degree of conscious feeling whatever in most cases. The imaginative creations of fiction writers have no real basis in scientific observation or experience so far as they attempt to portray in elaborate detail the last surviving consciousness of the victim; the fact is, we have no evidence or reasonable presumption that such exists, or that sudden death in appearance is not equally sudden and complete in reality.

The only practical importance of this question, however, is in its relation to euthanasia, and as regards this, for the most of mankind, even this practical importance does not exist. Men do not seek sudden death often for the purpose of avoiding the long drawn out pangs of ordinary dissolution; the normal man clings to life even with suffering. The conscientious physician who attempts to benumb with anodynes the tortures of fatal illness does so in fear and trembling lest he may inadvertently cut short the allotted span of life of his patient; it is only with condemned criminals and those among them whose offenses have been so extreme that it is deemed right and expedient to put them out of existence, that modern humanitarianism can have full play in assuring them an absolutely painless exit from this life. This is, in its way, an anomalous fact, and it need not be objected to, as it is in accord with the spirit of the times, which eliminates the retaliatory or revengeful element as much as possible from legal penalties, but it may be well to ascertain whether there are grounds for the belief that in any modern form of execution the element of painfulness exists to any serious extent. The subject was discussed editorially in this JOURNAL a few months since and some apparent objections to present methods strongly stated. It was shown that none of the present methods fully satisfied the humanitarian demands that there was an apparent possibility of some discomfort, if not of actual pain, in every method of death that had been devised or prepared as a penalty for capital crime. Even electrocution, which was adopted in New York as the method best satisfying modern ideas, has its hitches and delays, and death is not always clearly instantaneous, and now comes the report from Paris, through the public press, that a French physician has ascertained that even decapitation by the guillotine, which was supposed to be as nearly as possible an insurance of instant death, is anything but a success in that regard, and that decorporated heads retain a consciousness and exercise of their special senses for very appreciable periods of time after the operation. According to the authority referred to, the brain retains blood enough for its nourishment for an hour after decapitation and absolute death does not occur for three hours. To be sure, this contradicts well-known pathologic facts and theories, and the scientific exposé of his views and the grounds on which they are based has not reached us, but the statements go the rounds and excite comment and belief. In no way would it seem that capital punishment can be carried out in an unobjectionable manner.

The real question is, however, does actual pain exist at the moment of death; are not the senses so benumbed that the subject feels no pain, and do we not secure this in the methods of sudden taking off used in legal executions? The time-honored method of hanging is as barbarous as any in use in civilized lands, in appearance at least, yet those who have experienced it and been resuscitated do not as a rule describe it as agonizing—some of them, indeed, have described actually agreeable sensations, especially of a sexual order, and the very common phenomenon of priapism in the hanged would suggest that such may be very general. A long drawn out hanging is not, however, a desirable mode of death in a theoretic point of view and the method is open to the charge of being behind the age and in a sense barbarous. All methods that practically insure instant death, as do electrocution and decapitation, can not be really painful, for there is no reason to believe that the actual moment of dissolution is often, if ever, painful in itself, and if divested of needless accessories of publicity, etc., can hardly be called barbarous, that is, if the legal taking of human life is not itself a barbarism.

The chief barbarism and torture of modern methods dealing with capital crime is in the law's delays, he false hopes aroused, the long drawn out preliminies, more than in the final execution of the offender. he law plays with the criminal like a cat with a ouse and in so doing loses half the salutary terror he should excite against the commission of crime, hile it aggravates the mental agony and suspense of e formally convicted. And for all the rest of the orld euthanasia is, in all probability, needed more the precursors of dissolution than in the actual oment of death.

ESTRUCTION OF AN ARMY HOSPITAL BY STORM.

The destruction effected by the storm of October 2 ear Fernandina, Fla., has not been noted in the newsapers, as telegraphic and railroad communications ere interrupted for so long after the event, but reports ecently received by the War Department show that he hospital of the Third Division, Fourth Army Corps, as completely swept away and the military part of ort Clinch materially damaged. The weather was hreatening during the night of October 1, and the torm broke with great fury about 7 o'clock next orning. The barometer stood at 29.02 inches, the ind was estimated at 100 miles per hour and the sea ose to such an extent as to constitute what is usually alled a tidal wave. Fernandina suffered severely. Many buildings collapsed before the force of the gale. The water was six to eight feet deep over many of the docks, and tugs and other light vessels were stranded in the streets of the town. The quarantine station was washed from the face of the earth, as also was the hospital of the Third Division of the Fourth—General COPPINGER'S—Army Corps. The hospital was on the beach, about two hundred yards from the surf, but separated from the ordinary high-water line by a range of sand-hills. Fortunately most of the patients had been sent by hospital trains to the general hospital, Fort McPherson, Ga., on September 27, as it was the intention to abandon the site at Fernandina. In a few moments after the onset of the storm the waves broke through the line of sand-hills and submerged the tents used as offices and officers' quarters. An effort was made to save personal effects and the hospital records. The latter were recovered and placed in the pavilion wards, which at the time were believed to be free from danger. But as it soon became apparent that these would be swept away, the prompt removal of the patients was effected by litter. They were carried to the Strathmore Hotel, some four hundred yards distant, but by the time this was accomplished the pavilions were destroyed and the hospital corps barely escaped with their lives in their unsuccessful efforts to recover the books of the establishment. The water advanced on the hotel in which refuge had been sought, and the north end of it collapsed, while the south end remained comparatively secure. Meanwhile, about 9 o'clock, an official of the Florida Central and Peninsular Railroad Company, realizing that the sick, the attendants and others at the hospital would be in great danger, took an engine and two freight cars, and calling for volunteers, succeeded in reaching the hospital, although the fire in the engine was nearly extinguished by the high water on the track. He succeeded in carrying them to a high ground on the track, where they were safe, and whence, late in the evening, some managed with difficulty to reach Fernandina while others remained on the cars during the succeeding night. Major W. F. CARTER, surgeon U. S. Army, chief surgeon of the hospital, reports that his men behaved with the utmost coolness and made strenuous efforts to save property and lives. They were up to the armpits in water in the work of rescuing women and children.

Fort Clinch, an old artillery post, garrisoned for the first time in many years when war was declared, was greatly damaged by the storm of October 2. As at most of these old posts which have been recently brought into active service, the buildings were decayed and unfit for occupancy except under conditions of war. The water rose to five feet in the quarters. The medical officer, Dr. FRANCIS LIEBER, was sick with typhoid fever at the time and was awaiting the arrival of Dr. SHATTUCK from Hilton Head to relieve him. After the storm Surgeon CARTER, of the division hospital at Fernandina, sent one of his assistants, Dr. CHMELICEK, to bring Dr. LIEBER and his sick men to the city, about seven miles distant. Dr. LIEBER died on October 11. He was the son of Gen. NORMAN G. LIEBER, judge advocate-general of the army. There is no doubt that the excitement occasioned by the storm had a harmful influence on the progress of the sickness.

RED CROSS AID AT SIBONEY.

The story of the work of the Red Cross at Siboney, when the Spanish troops interfered with the march of the Rough Riders and the Colored Cavalry to Santiago, was told very extensively at the time, and the refusal of the Army Medical Department to accept proffered assistance met with severe comment in many quarters. To refer to it at this late date looks like being behind the times, but the fact is we have only now heard from the other party concerned. The accounts already published came directly, or indirectly through the interviewer, from Red Cross sources, but now Colonel VALERY HAVARD, who was chief surgeon of WHEELER'S Cavalry Division, considers it proper for him in the interests of truth and justice to make to the Surgeon-General a statement of the facts as known to him, the officer most concerned. His tale is interesting, otherwise, as presenting a graphic and unvarnished picture of the difficulties of the

medico-military situation and the pitiable condition of our wounded or sun-stricken soldiers. He says:

The first division of our troops landed at Baiquiri and advanced swiftly to Siboney, which it occupied without resistance. On the 24th, the transport *Alleghany*, upon which I was, with other members of General Wheeler's staff, steamed down to Siboney, but it was only on the morning of the 25th that I was able to make a landing. This landing was accelerated by the news, brought by a newspaper man, of the fight which had taken place the day before in the jungle of Guacima. Fortunately we had kept on the upper deck, in an accessible place, three medical and surgical chests, quite a lot of additional articles, a small bale of blankets and a few litters. All these we quickly transferred to a row-boat and successfully landed, so that there was no suffering, at any time, among my patients due to any want of medical attendance, medicines or dressings. We also had an abundance of rations, which were cooked and served without counting.

A large store-room, much dilapidated but with plenty of doors and windows, seemed to be the best place for our provisional hospital; I already found a few patients there and hastened with one assistant surgeon, two acting stewards and four hospital corps men, to make the place as clean as possible. The wounded, some forty in number, were brought in during the whole day of the 25th, on all kinds of improvised litters, about five miles over a very muddy trail, in the heat of a tropical jungle, but all arrived safely. This transport by hand of the wounded by their devoted comrades struck me as hardly less heroic than the battle itself.

We laid the patients in two rows upon the hard wooden floor, with hardly room enough to pass between. We were almost entirely destitute of cots and blankets, the few litters we had brought from the ship being used as bunks for the worst cases. With and after the wounded, came in a steady stream of cases of heatstroke, remittent fever and dysentery. Soon the floor space in the main room was crowded, the patients lying side by side. Other adjoining rooms were utilized, light and ventilation being obtained by knocking down the partitions; but before long the whole building was overflowed and patients had to be placed upon a narrow rickety porch, more or less exposed to rain and sun. To make matters worse, cases of measles came and had to be provided for. This we did in a nearly contiguous rum-shop, exceedingly filthy but with one front room susceptible of some degree of cleansing. In this we crowded twenty-six patients, several sleeping on the large counter.

Our kitchen arrangements were a comparative success. We had an active and intelligent cook who knew how to hustle in an emergency. He got together the necessary utensils, and enough of substantial food was provided from the first. An unexpected and much prized discovery in the village, was a half dozen casks of excellent and wholesome Spanish wine, which was turned over to the hospital and probably saved several patients' lives.

However, our position was pitiful; the patients lying on the floor, mostly in their trousers and flannel shirts. With few exceptions they had thrown away blouse, blankets and ponchos. The blankets we had brought with us did not go far in this great need. The days were very hot but the nights unexpectedly cold and some thick covering was required for comfort. As already stated, we had nothing better to feed these men than the ordinary articles of the soldier's ration, with but few delicacies, which did not last more than a day; but notwithstanding this destitution, I do not recall that a single man brought into that building died there. In two or three days the hospital ship *Olivette* arrived and most of the wounded were carried upon her. On the 29th I transferred the few remaining patients to Dr. LaGarde and rejoined my division at the front.

From the beginning, Miss Clara Barton's ship, the *City of Texas*, lay in the Bay. Realizing the futility of expecting stores from the hold of our own ships, although anchored only a few yards from shore, I rowed to the *City of Texas* and called on Miss Barton the day after I took charge. She received me kindly, listened to my tale of suffering and promised to send some cots, blankets, and whatever food stores for the sick she could spare, the primary object of her charity, as she explained, being the Cuban rather than the American soldier. She was as good as her word. Only a few cots came, but the blankets were nearly sufficient to give one to all patients who were without any.

Next day, some of the members of her staff visited the hospital and, in my absence, asked my assistant what they could do for the comfort of the patients. This assistant took upon himself to decline their kind offer of services, not even notifying me of the occurrence. Here I may remark that I was surprised the gentleman who accompanied the ladies should have inquired for the officer in charge of the hospital as responsible for it. Probably I was stealing a nap in some corner and could easily have been found. Therefore, I was amazed when, later in the afternoon, an elderly lady and younger one appeared, both meeting me in the middle of the main ward with marked frigidity of manner and addressing me with unmistakable acerbity of tone. Sweeping their arms along the rows of patients, they asked me how I could stand unmoved at such a pitiful sight and scorn assistance when stood in need of everything. The younger lady was particularly persistent in discharging her injured feelings upon my innocent head, and it required considerable self-control not to betray myself into an expression of impatience. They told me all that they had accomplished at the Cuban hospital, half a mile away; how the floors had been scrubbed, fresh linen put on the beds and every patient made comfortable; that it was a shame they should not be allowed to do the same for the American soldiers. I succeeded, in time, in making them understand that a very unpleasant mistake had occurred, for which I was exceedingly sorry but blameless; that, on the contrary, I had, from the beginning, been hoping for their help and was ready and anxious to receive it at any time, the sooner the better. One of the Red Cross gentlemen joined us at this time and I offered him the same explanation and extended the same request. It was then agreed that the ladies would come the next day. They accordingly appeared in the forenoon and I showed them the uninviting field of their volunteer labor. The inquiry was naturally made, where they could find a room for themselves. I told them that there was absolutely none in the two buildings occupied by the patients the medical officers taking chances at any unoccupied part of the porch. I took them about four hundred yards to a barn which had a habitable room, or rather a room which could have been made as habitable as could be looked for at that time and place. They consulted among themselves, gave me some evasive answer and went to the Cuban hospital, where they remained. Never afterward did they return to my hospital or offer personal services. In other words, to speak plain truth, an earnest appeal was made to them and they did not respond. Their reasons may have been good and I never questioned them, but I have wondered why in their accounts of those painful days, I am blamed for refusing the services of those ladies when, in fact, they refused to give the services that were asked.

This incident did not, however, alter my high appreciation of the Red Cross. Even at Siboney, if I missed the deft fingers of sympathetic nurses, I received substantial help in other ways. Later, at the field hospital, on the Santiago road, after the dreadful days of July 1 and 2, when I saw Miss Barton, with another lady, arrive on an army wagon over one of the worst roads in the world, and, without any rest, go to work and prepare soup over a camp fire, I realized that a society inspired by such a leader could not help being fruitful of good results. Therefore I obeyed a very natural impulse when, at Santiago, the day before her departure, I called on Miss Barton and, in the name of the Medical Department, expressed to her my grateful acknowledgments for all her society had done for us in our times of need.

CORRESPONDENCE.

For a National Bureau of Health.

DETROIT, October 14, 1898.

To the Editor:—It is now the time of the year that the medical men of the United States should be sounding the candidates for the office of United States Representative as to the position they are going to take upon the question of establishing the National Bureau of Health.

The Wayne County Medical Society of Michigan, the largest medical society in the State, excepting the State Society, passed resolutions last evening, appointing a committee to look after this matter, and also to inquire into the position that the State Representatives will take on this matter when the selection of United States Senators goes before them. Individually, several members of our Society have also taken pains to see various prospective candidates so as to place this matter before them in such a light that they may act intelligently upon the question when presented to them; and if

ndidate refuses to co-operate with us, then it is proposed to now him under" at the polls.

I am satisfied that had this National Bureau been formed a ar ago much of the terrible deprivations and sufferings that ertook our boys in the field would have been largely reduced; had President McKinley had at his elbow a man in touch ith all the leading health organizations of the States, as would have, had this Bureau been formed as the Committee of the AMERICAN MEDICAL ASSOCIATION had it mapped t, a better selection for Army camps would also have been ade.

While I do not wish to criticize at all the work of Surgeon-eneral Sternberg—for I consider it magnificent—yet, at the me time, I feel that had he had the aid of some one at head-uarters, in the President's Cabinet, who was a careful, conscien-ous medical man, that the medical record of the army ould not have been surpassed in the history of active military mpaigns.

With this view, I ask your readers everywhere to put into eration the necessary measures for explaining these matters the Congressional candidates, and for those of the State egislature, so that in the coming year our representatives can ork more in harmony upon this all-important medical ques-ion—the establishment of a National Health Bureau.

Some of the present United States Senators and Represen-atives are warmly in favor of the bill advanced by the Com-ittee of the AMERICAN MEDICAL ASSOCIATION, introduced by enator Spooner, and we are satisfied that many of the other embers of both the House and Senate would be as warmly ommitted to its provisions if they only knew its far-reaching eneficial results. Yours truly,

C. HENRI LEONARD, M.D.

Another Cataractous Family.

WHEELING, W. VA., Oct. 15, 1898.

To the Editor:—About two years ago, in the *New York Medical Journal*, I reported "A Cataractous Family," in which the mother, three daughters, and possibly two sons, have had cataracts at about the age of 40.

I operated today on a mature cataract in the right eye of a man named Reason Goddard, farmer, aged 67. It had first begun to dim his sight sixteen years ago. One in the left eye is about half formed.

His father had cataracts in both eyes, well-matured, when he died at the age of 68.

An older sister of the patient was blind from cataract and was operated on at about the age of 50.

Another sister, aged about 60, has a mature cataract in the right eye.

Two male cousins, sons of his father's brother, had cataracts in both eyes when about 60 years of age.

JOHN L. DICKEY, A.M., M.D.

SOCIETY NEWS.

Postponed.—The Southern Surgical and Gynecological Association has postponed its Memphis (Tenn.) meeting until Dec. 13, 14 and 15, 1898, on account of the prevalence of yellow fever.

American Microscopical Society.—This society at its recent annual session, elected the following officers for the ensuing year: President, Dr. William C. Krauss, Buffalo; first vice-president, Prof. A. M. Bleile, Columbus, O.; second vice-president, Dr. G. C. Huber, Ann Arbor, Mich.; secretary, Prof. Henry D. Ward, Lincoln, Neb.; treasurer, Magnus Pflaum, Pittsburg; executive committee, Prof. S. H. Gage, Ithaca, Dr. A. Clifford Mercer, Syracuse, and Dr. V. A. Moore, Ithaca.

American Electro-Therapeutic Association.—This association, at its eighth annual meeting in Buffalo, N. Y., held September 13, 14 and 15, elected for president, Francis B. Bishop, Washington, D. C.; vice-presidents, Ernest Wende, Buffalo, N. Y.; William P. White, Boston, Mass.; secretary, John Guerin, Auburn, N. Y.; treasurer, Richard J. Nunn, Savannah, Ga.

Wayne County Medical Society.—At the regular meeting, held October 13, in Detroit, Dr. K. Gunsolus read a paper on "Cranial Abscess." He said that, in the early '70s, when he first began to practice medicine, he passed through an epidemic of cerebrospinal meningitis, in Monroe County, Mich. The epidemic began in the spring of the year and continued with more or less severity for about a year. Great numbers had been attacked and the mortality was high, many of the deaths being due, no doubt, to the formation of pus in the cranial cavity. No attempt at relief by surgical interference had been done, for brain surgery was then in its infancy. While there is an increasing field for the general surgeon in this branch of science, there is more work and more attainments to be accomplished by the ear specialist in this direction than any other, for it is conceded, and statistics show, that more than one-half of the cases of cranial abscess arise from a suppurative process in the middle ear. As to the other causes of cerebral abscess, we have first, traumatism, more frequent than severe, though it may follow a slight injury and a long while after the injury has been received. In these cases the abscess is always found at the seat of injury. Another cause of cerebral abscess is caries or suppurative processes in the orbital cavity, the antrum of Highmore, or the nasal cavity. Boettcher reported a case where a cerebral abscess was secondary to an abscess of the lungs. Lastly, there are the so-called idiopathic cases, which some so stoutly deny having any existence. The doctor then entered into the symptoms, including the localizing symptoms by which it is possible to tell more or less accurately the location of the abscess, enumerated the diseases from which cranial abscess should be differentiated, and gave the treatment, which is the evacuation of the pus with good drainage, as in abscesses elsewhere. Drugs of any description amount to nothing.

NECROLOGY.

H. A. GILMAN, M.D., for many years superintendent of the Hospital for the Insane at Mount Pleasant, Iowa, died October 9. Dr. Gilman was a man of rare executive ability, and came to Iowa from the institution of like nature at Jacksonville, Ill., where he had been assistant physician fifteen years. The hospital at Mount Pleasant stands as a monument to his general capabilities as a manager. He was graduated from Dartmouth Medical College in 1867. He was 53 years old.

NATHAN SMITH LINCOLN, M.D., University of Maryland, 1852, a well-known physician of Washington, D. C., died there October 3, aged 70 years. He was an emeritus professor of surgery to the Columbian University at the time of his death and was also a member of many medical societies, and of late years in high esteem as a consultant. He will be recalled by most of the profession as an attendant of President Garfield during the last months of his life.

FRANCIS LIEBER, M.D., an acting assistant-surgeon U. S. A., Judge Advocate-General Lieber's oldest son, died of typhoid fever at Fernandina, Fla., October 10.

HENRY CLAY BAKER, M.D., Malvern, Ark., October 9.——C. M. Holmes, M.D., first assistant physician at the Northampton Hospital for the Insane, Northampton, Mass., October, 7, aged 49 years.——Charles L. Fox, M.D., Lowell, Mass., aged 28 years.——Calvin Morgan, M.D., Dugansville, Ky., October 3.——William Pratt Read, M.D., Philadelphia, October 8, aged 51 years.——John G. Stuart, M.D., Fortville, Ind., October 7, aged 73 years.

PUBLIC HEALTH.

Health in Michigan.—Reports to the State Board of Health for September give the five most prevalent diseases as: Diarrhea, rheumatism, neuralgia, bronchitis and tonsillitis. Compared with August (vide JOURNAL, p. 803), typhoid fever, influenza, remittent fever and tonsillitis increased in area of prevalence.

The Bacillus Icteriodes.—The report on Sanarelli's work in regard to yellow fever, presented recently to the Rio Janeiro Academy of Medicien, by A. Ramos, confirmed all his statements concerning the etiology and agent of the disease, but failed to confirm his therapeutic and prophylactic serum treatment, which is "still an aspiration."—*O Brazil Médico*, August 1.

Solid Diphtheria Serum.—This appears as a yellowish or whitish powder or yellow transparent leaves, which dissolve in ten parts water to a fluid resembling fluid serum in color and aspect. The standard established by the German authorities is 5000 immunity units to 1 gram, and the price not above two marks for 200 units or eight marks for 1000 units.—*Klin. Therap. Woch.*, September 11.

Prophylaxis of Measles.—Widowitz has been studying several extensive epidemics of measles, and he now announces that epidemics could be prevented by the simple measure of closing the schoolroom in which the first case was noted, from the ninth to the fourteenth day after the first indications were observed, and the parents of all the children in this room ordered to keep their children away from other children during these distinctly specified five days. Children from the same house could then return to school if provided with a physician's certificate that they have previously had the measles.—*Vienna Klin. Woch.*, No. 36.

The Water-Supply of Northeast London.—The citizens of London are unable to cope with their water supply companies, among which there seems to be not much reciprocity. The East London Waterworks Company does not keep faith with its customers, and a correspondent writes that an *émeute* of the population is to be dreaded. The Royal Commission, which leans somewhat to the management by the companies themselves of their own affairs, may recommend "the amalgamation of all the companies into one central scheme under the control of a public body, perhaps the London County Council." The water companies were repeatedly urged during the last twelve months to connect their systems and be prepared to help one another in an emergency, but nothing was done. For a truth small communities have the greatest bliss, since with them dividends and stockholders are not widely known.

Yellow Fever.—After our report of last week was prepared, Jackson, Miss., reported 9 new cases, on October 10, with 14 new cases at Harriston, 1 more at Canton, 15 at Madison, 1 at Oxford, 1 at Meridian, 1 at Taylor's Station, 6 with 1 death at Orwood and 8 at Hattiesburg. On the same date Louisiana reported: New Orleans, 4 new cases and 1 death; Wilson, 8 new cases; Houma, 10; Franklin, 14 and 1 death; Clinton, 3; Lake Charles, 1; Crystal Springs, 4; Ridgeland, 1. October 11 reports gave: Jackson, Miss., 11 new cases; Poplarville, 7; Madison, 3; Harriston, 13 and 1 death; Hermanville, 1; New Orleans, 2; Franklin, 16; Wilson, 10; Houma, 1 and 1 death; Alexandria, 7 and 1 death. On October 12: Oxford reported 10 new cases; Edwards, 6 and Waveland, 6; New Orleans, 2 and 2 deaths; Franklin, 2; Wilson, 17 and 1 death; Baton Rouge, 10. On October 13, Jackson's record was 14 new cases and 1 death; Natchez, 6; Madison, 5; Starkville, 1; Oxford, 1 death; Hattiesburg, 6 new cases; Harriston, 16; New Orleans, 2; Wilson, 8; Alexandria, 6 and 1 death; Houma, 11; Amite City, 1 and 1 death; St. Clair 11 and 1 death. October 14, Jackson, 10 new cases; Taylor's Station, 1; Poplarville, 12; Madison, 6; Waveland 2; Hattiesburg, 3 and 1 death; Natchez, 4; Harriston, 3; Oxford, 1; New Orleans, 1; Franklin, 13 and 1 death. October 16, Jackson, 8 new cases; Yazoo City, 6; throughout the State, 19 other new cases and 3 deaths; Franklin, La., 22 new cases. As we go to press, the report for October 17 gives 15 new cases at Jackson, and 23 with 2 deaths at other points in Mississippi.

Proclamation of the Florida State Board of Health.

OFFICE OF AGENT OF
STATE BOARD OF HEALTH OF FLORIDA,
KEY WEST, FLA., Aug. 18, 1898.

To the Public:—On Tuesday afternoon, the 16th inst., a telegram was received at Port Tampa from the agent of the State Board of Health at Key West, stating that three cases of yellow fever were reported at the U. S. Marine Barracks, corner of Whitehead and Eaton Streets, Key West, but that he did not diagnose them as yellow fever. Leaving Port Tampa the same night on the *Mascotte*, Key West was reached at 4 P.M. the following day. As soon as practicable the cases reported to be yellow fever were seen, together with several cases of other sickness, which were all in the same ward and building. In a careful examination and study of their histories then, and a subsequent examination this morning, I am unable to confirm the diagnosis of yellow fever.

In making this statement the State health officer would do justice to the members of the medical profession here, as well as to those of the Army and Navy and Marine-Hospital Service who have seen the cases, and from whom he differs in diagnostic points of symptomatology, and that he is alone in his opinion and decision, but he is quite willing that any medical man elsewhere shall visit this place and investigate for himself; in fact, he invites the closest scrutiny and probing of these and any other cases of sickness which have occurred at Key West this summer.

The logical sequence of events must demonstrate the correctness or incorrectness of the opinion of the State health officer. At the same time, being aware that no one is infallible in judgment, and that a great responsibility rests upon the State Board of Health of Florida in protecting the citizens of the State and United States against contagious and infectious disorders, and as United States Government officials have reported to Washington the existence of yellow fever before notifying the local health authorities, as required by the laws of the State of Florida and of the United States of America, the State health officer, before examining the cases reported to be yellow fever, realizing that publicity had created concern among the people of the country, desired to guard against any possible danger by giving every guarantee, therefore as a measure of extraordinary precaution, prescribes the usual regulations as if yellow fever prevailed at Key West. Immunes may pass through the State, their personal effects subject to disinfection. Non-immunes will be subject to at least five days detention at U. S. Camp at Egmont Key. Key West will remain under observation, with a view to preserving the public health, and modifications of quarantine deemed necessary will be made from time to time.

JOSEPH Y. PORTER, M.D.,
State Health Officer.

KEY WEST, FLA., Sept. 4, 1898.

To the Public:—On the 18th of August a statement was made that the State health officer had not seen a case of yellow fever in Key West among the U. S. Marines, who were then reported as sick of that disease, although he was only one of many of his professional brethren of both civil and military life who entertained a contrary opinion. Since that time he has seen cases of similar sickness to that of the marines in civilians, and he has information of many cases like in character among the native population. He does not now believe the prevailing fever to be yellow fever, because of: the time of attack, in the day while at work, and not at night in bed, which latter is the invariable rule in yellow fever; the albumin in the urine of all cases examined, except in one case out of sixty, and then coming too early and disappearing too soon; the trivial gastro intestinal irritation and persisting vomiting nor gagging; a return to health with ltttle or no medication or attention, some continuing to work with considerable fever; and the lack of fatality. These are salient points, all in their absence adverse to a yellow fever diagnosis.

The State health officer can not positively declare the prevailing fever to be *dengue*, although he so believes, because of the absence of a rash, which is generally present even in a limited number of cases, and thus is characteristically diagno-

This febrile disturbance now existing here, is evidently transmissible, from the "falling down" of many persons in different parts of the city, and it is because of this, and of a doubt as to the true nature of the disease, which is entertained and expressed by Dr. R. D. Murray of the U. S. Marine-Hospital Service, a medical expert of the U. S. Government, who came here at the request of the State health officer, and because further, when this doubt is known, should the quarantine against Key West from the mainland of Florida be raised, the neighboring States and the U. S. Government would immediately place a restrictive embargo against the whole state of Florida, that it is deemed both wise and prudent to continue the restrictions on travel from Key West for a few days longer, in the hope that the type of the disease, whatever it is, shall become so pronounced that there may be no mistaking its identity. It must not be forgotten that a terrible responsibility rests upon the State and U. S. health authorities—on the one hand to protect the health of the people, and on the other not to needlessly interfere with their commercial life—and that an error of judgment in the character of any transmissible disease may entail suffering, grief and great commercial disaster elsewhere in the country.

The experience gained at Ocean Springs, Miss., and at Flomaton, Ala., last year when a great number of cases of "fever" developed within six weeks before a death occurred or the disease was suspicioned, "must give us pause," and the sensitively critical of our people on the subject of quarantine must not overlook the fact that there has been a division of sentiment and opinion among the medical men of the locality, as well as among the Government medical officers, which will have its impress and influence outside of Key West.

For these reasons, which are considered sufficiently potent to warrant soliciting consideration, the State health officer asks that the citizens of Key West will with their usual patience bear with the health authorities of the State in this dilemma, and assist in the effort to conserve the interests of the commonwealth and of other States. JOSEPH Y. PORTER,
State Health Officer of Florida.

I concur in the above.
R. D. MURRAY,
Surgeon U. S. Marine-Hospital Service.

EXECUTIVE OFFICE,
STATE BOARD OF HEALTH OF FLORIDA.
KEY WEST, FLA., Sept. 8, 1898.

To the Public:—When on the 16th and 17th of August yellow fever was officially reported to Washington by navy, army and other physicians, as existing at the U. S. Marine Barracks in Key West, the diagnosis was disputed on the 16th (next day) by the State health officer of Florida: who had been summoned from Port Tampa to investigate the case; but as he stood alone in his opinion, he then stated that "the logical sequence of events must demonstrate the correctness or incorrectness of the opinions expressed."

On September 4 he again stated that the "prevailing fever" in Key West was not yellow fever, but dengue. However, as U. S. Medical Expert, Dr. R. D. Murray, of the U. S. Marine-Hospital Service, who came here at the request and urgent invitation of the State health officer (because of the contention of himself with other medical men, both civil and military), was not yet satisfied as to the true nature of the "fever" the indulgence of the citizens of Key West and the public in general was asked for a further delay of a few days to satisfy this doubt, before removing the restrictions on travel from Key West, which had been in force since the 18th of last month.

The "logical sequence" has resulted in positively affirming the position taken at the beginning by the State health officer and by Surgeon A. H. Glennan, Marine-Hospital Service, after his arrival here. The characteristic rash of dengue has been seen in several cases on the island, and P. A. Surgeon H. D. Geddings, U. S. Marine Hospital Service, at the U. S. Marine-Hospital Camp of detention at Egmont Key, wires that a passenger from Key West, August 22, developed at his camp, a typic case of dengue, with chill, fever, joint pains, fine rash, but no albumin. He was sick four days, and afterward was discharged from the camp well.

Again P. A. Surgeon L. L. Williams U. S. Marine-Hospital Service, wires that he has seven cases of fever at Tortugas, three of whom have the rash of dengue.

If any further confirmatory evidence is required to the observations already made here, the case at Egmont Key Camp and the case at Tortugas add a strong convincing link in the chain of substantial proof.

In addition to the foregoing, Surgeon Murray states that he is convinced that the "prevailing fever" is dengue and not yellow fever.

Therefore the quarantine restrictions on travel from Key West are removed.

It is due however to the public to state, that dengue, which is now prevailing here, is an infectious disease, causing generally several days of discomfort, but is not fatal.

JOSEPH Y. PORTER, State Health Officer.

DENGUE FEVER.

JACKSONVILLE, FLA., Sept. 16, 1898.

Dear Doctor:—I have already notified you that dengue fever existed at Key West, and the necessity for not confounding it with mild yellow fever, i. e., in my circular letter of the 10th instant. So little has been written of late years upon this subject, however, that I have decided to take the liberty of calling your attention to characteristic symptoms which can not fail to be of help in the differential diagnosis. I would not do so—for I presuppose that you are fully acquainted with dengue in all its peculiarities—but for the apprehension which would follow a false diagnosis in either case.

As you know, it is an infectious disease, but not fatal, and *not quarantinable.* It usually attacks or seizes one during the day time, and not, like the yellow fever, in the wee small hours—1 to 5 or 6 A. M. There is slight gastro-intestinal disturbance. No tendency to hemorrhage. But a very small percentage of cases show albumin. A rash appears on the decline of the fever, seen frequently in the mouth when absent on the body. Remissions of fever, looked upon as relapses, because recurring after the first or initial fever has been absent a day or two. The tongue of dengue is generally that of a malarial disorder—a broad, flabby and tooth-marked tongue, with whitish coat. Pepper's Text-Book of Medicine (1893), Vol. i, contains quite an interesting and accurate article on dengue by Dr. Pepper himself.

Very truly yours,
JOSEPH Y. PORTER, M.D.,
State Health Officer.

BOOK NOTICES.

Transactions of the Rock Island Medical Society. Vol. v. Part iv. 1897. Paper. Pp. 135. Illustrated. Providence: Snow & Farnham. 1898.

This pamphlet contains the proceedings of the quarterly meetings, held March 4, September 2 and December 2, and the annual meeting held June 3, 1897, also obituaries of Drs. H. E. Turner, Charles O'Leary, A. A. Saunders, W. E. Anthony, A. H. Nickerson, D. H. Sullivan and W. E. Coyle; and the following papers: "Specialism, the Laboratory and Practical Medicine"; "The Therapeutic Value of Nebulized Fluids"; "Pelvic Suppuration, Treatment by Vaginal Drainage"; "Serum Diagnosis of Typhoid Fever"; "A Case of Laminectomy for Spinal Injury"; "Two Cases of Laminectomy"; "Laminectomy in Spinal Injuries"; "A Case of Tetanus, with Recovery"; "Case of Asthenic Bulbar Paralysis"; "The Physician upon the Witness Stand"; "A Case of Cerebral Cyst."

Transactions of the Texas State Medical Association.—Cloth. Pp. 310. Austin: Eugene Van Boeckman Pub. Co. 1898.

One of the most attractively gotten-up volumes of transactions, this one is a decided addition to the physician's library. The paper and presswork are excellent and the contents, comprising the usual topics found in society transactions, well arranged. The volume covers the proceedings of the thirtieth annual session, held at Houston, Texas, April 26-29, 1898. The papers, as presented at the meeting, are grouped under the headings: General Medicine, Obstetrics and Diseases of Children, Surgery, Gynecology, Ophthalmology and Otology, and number thirty-four, many with discussion appended.

Proceedings of the Connecticut Medical Society. Pp. 445. Published by the Society. 1898.

This volume contains the usual data found in "proceedings," and the following papers read at the one hundred and sixth annual meeting, held at New Haven, May 25 and 26, 1898: "Report on the Progress of Medicine"; "Angioneurotic Edema of the Tongue"; "Diseases of the Tonsils"; "Acoumeters and Their Diagnostic Value in Ear Diseases"; "Therapeutic Effects of Electricity of High Tension"; "The New Widal Reaction for Typhoid Fever"; "Use of Diphtheria Antitoxin"; "Intubation of the Larynx, Report of Fifty

Cases"; "Mushrooms and Mushroom Poisoning"; "The Relation of Muscular Co-ordination and Trauma"; "A Case of Pachymeningitis Interna Hemorrhagica"; "A Case of Double Homicide"; "Some Remediable Forms of Sterility"; "Puerperal Eclampsia"; "Ophthalmic Science in Its Application to School Hygiene"; "Physician Heal Thyself"; "Progress of Surgery"; "Progress in Gynecologic and Genito-Urinary Surgery"; "A Complicated Case of Intussusception"; "Surgical Puerperal Septicemia." There is also a report of a committee on matters of professional interest in the State, covering "Malaria in Children," "A Certified Milk Farm" and "Interesting Cases in Practice."

Minutes of the Mayville Meeting of the Kentucky State Medical Society. Paper. Pp. 36. Louisville: John P. Morton & Co. 1898.

These minutes are for the meeting held May 11–13, 1898, the Committee on Publication deeming it best to issue only the minutes of this session of the Society, and not the papers presented. An alphabetically arranged roster of members is included. The paper and presswork are excellent.

MISCELLANY.

Quadricentennial of the Discovery of Brazil.—To commemorate this anniversary in 1900, for which great preparations are being made, the physicians of Brazil have undertaken to publish a work on "Intertropical Pathology," and the pharmacists a "Brazilian Pharmacopeia."

A Long-lived Couple.—Madam Henriette Simonet recently died at the Salpêtriere, aged 105 years and 6 months. In 1810 she married her only husband who died Nov. 18, 1890, aged 100 less 3 days. Their daughter, now 78 years old, is still an inmate of the institution.

Hypnotic Suggestion in the Treatment of Epilepsy is recommended by Bérillon, who has witnessed a remarkable modification of the character of epileptics to whom it was suggested to resist their impulses and neutralize their automatic habits. The number of the attacks also decreased. This treatment is not applicable to the insane or imbecile.—*Revue Méd.*, September 28.

Thirteenth International Medical Congress.—Brouardel is chairman of the committee of organization, with Bouchard and Marey, vice-presidents, and Chauffard general secretary. Lannelongue is chairman of the executive committee, which includes the general secretary and Bouchard, Bouilly, Brouardel, Dieu, Gariel, Le Dentu, Malasser, Nocard, Reymond, Rendu and Roux. The Congress will open August 2.

Chloroform and Gas-Light Intoxication.—Famulari describes the products of the combination of chloroform and gas light as free chlorin, volatile hydrochloric acid, carbonic acid, etc. (*Policlinico*, June 15). Lorentz of Bochum reports in the *Zeitschft. f. Med. Beamt.* No. 3, a severe intoxication following a three hours' narcosis. The patient died in six hours, the attendant nurse in twenty-eight and the operator was at the point of death for several days but finally recovered. All had experienced a spasmodic cough during the operation.—*Munich Med. Woch.*

Oblique Heredity.—Beugnies remarks that the "newcomer who fecundates a widow-mother or a girl-mother, accomplishes a three-sided fecundation," and mentions the following instance: a girl bears a child to a tuberculous man and both man and child soon die of tuberculosis. The girl returns to her native town and marries another man, but the first three children born to this couple, who are both perfect specimens of health, die of tuberculous meningitis in early childhood, and the other child growing up apparently healthy, and marrying an apparently healthy man, bears children all affected with tuberculous ganglions.—*Journ. de Méd. et de Chir. Prat.*, September, 10.

The Abatement of the Invective Nuisance seems at hand. The "agin-the-government" people having had their benefit of r... erations and charges of incompetency, seem to be prepar... winter quarters. A short war on the whole satisfies the m... titude, more particularly since the popular officers of the ar... have spoken freely of arrangements that were beyond critici... The medical department is now in course of vindication ... "the sober second thought."

Agglutination of the Blood Corpuscles.—Elfstrand announc... that the poisonous albuminoids—ricin, abrin and crotin... derived from the crotin seed, produce a marked agglutinati... of the red corpuscles. Ricin and abrin produce it in nea... every kind of blood, while crotin only affects certain kin... Two drops of blood from two different animals, impossible ... distinguish by macroscopic or chemic tests, can thus be re... ily differentiated with crotin; human blood and pig blood, ... instance, which may prove important from a medico-leg... point of view.—*Klin.-therap. Woch.*, September 11.

Muscular Rheumatism.—Erben has been investigating ... cases of lumbago and finds that the trouble is not muscular ... supposed, but proceeds from an affection of the lumbar ve... tebræ with sensitiveness to pressure over them (119 cases) ... else from neuralgia of the cutaneous nerves, proceeding fro... the third posterior lumbar branch, with the painful region ... the buttocks instead of over the spine. A third group was ... combination of these two affections. In the other twenty-fo... cases it was impossible to found a diagnosis in nine; in th... test the lumbago could be traced to alcoholism, to incipien... tabes or osteomalacia. He also attributes to the cervical ve... tebræ and the nerves emerging from them the etiology ... wry neck, twelve cases. The muscular contraction follow... secondarily, as the head is twisted to prevent pain.—*Cbl. f. Chir.*, September 10.

"Heart Epilepsy."—H. Beer does not consider epilepsy a dis... ease, but only a symptom resulting from cumulative irritatio... of the cortex. This irritation may be hematogenic, reflex o... traumatic, and the various neuroses correspond to varyin... grades of the same condition affecting different persons differ... ently. A few rare cases of "reflex" heart epilepsy have been recorded, due to arteriosclerosis or valvular insufficiency, and Beer now reports a case of epileptic attacks occurring in ... woman of 50 years with hypert ophy of the right ventricle fo... seven years consecutive to emphysema of both lungs, causing dyspnea and palpitation at the least exertion. No attacks have occurred since the five in the first three months during which he administered 2 grams bromin (Sandow's effervescent) with inhalations of oxygen and 5 gram nitroglycerin tablets twice a day.—*Klin. Therap. Woch.*, September 11.

Statistics in Regard to the Sexual Life.—A prominent Russian physician, whose name is withheld, writes to *Wratsch*, suggesting that some medical journal undertake the task of collecting and tabulating statistics in regard to the sexual life, to be sent in anonymously by physicians who realize the inconveniences and even dangers of the present lack of definite standards on this delicate subject, and would be willing for the benefit of science to note the particulars of their personal sexual life. He suggests the following points: 1. Sex. 2. Age. 3. Family relations, married, free love, etc. 4. Masturbation. 5. Age at first sexual intercourse. 6. Largest number of cohabitations in twenty-four hours; at what age? 7. Impotantia cœundi; at what age? 8. Ever any symptoms of any abnormal sexual impulse; at what age? 9. Ever affected with syphilis, ulc. mul. or gonorrhea? 10. Were there ever any abnormalities in the sexual function? He sets the example by extracts from his own note-book in which for twenty-five years he has recorded his experiences on the above points, influence of seasons, etc.—*Dermatol. Cbl.*, September.

Internal Endodiascopy.—L. Bouchacourt, in his thesis, Paris, 98, confirms his announcement of the value and harmlessss of fluoroscopy and radiography by the introduction of a ng narrow Crookes' tube into the natural cavities of the dy, especially the vagina (*vide* JOURNAL, page 933). He ates that the static machine is the only safe one to use. The crum and symphysis can thus be inspected to the moment fetal engagement. The shadows cast by the bones in the ighborhood are much more distinct than by the usual ethods, as there are no superposed planes, and there is less bstance for the ray to penetrate, while the screen or plate n be applied geometrically close to the organ to be inspected. *Presse Méd.*, August 24.

Cure Worse than the Disease, the Latter is Expelled.—The physics the sense of smell has been brought up for study and dission, in a prominent fashion, by Professor Ayrton's address fore the British Association meeting at Bristol. The followg paragraph in the *New York Sun* gives intimation that ere is a physic through the olfactory sense: "It is said that in ustralia there is a hotel where rheumatic patients congrete. Whenever a whale has been taken the patients are wed over to the works in which the animal is cut up, the halers dig a narrow grave in the body, and in this the patient es for two hours, the decomposing blubber of the whole hale closing around his body and acting as a huge poultice. his is known as the whale cure for rheumatism."

The German Congress of Railway Physicians met at Cologne in eptember, where the arrangements for night lodgings and day aiting-rooms for the employes were recommended as models. he necessity of annual vacations, lasting several weeks and onger, in proportion as the service is exacting and the employe is lder, was emphasized. Brähmer asserted that the years of serice of a locomotive engineer should be calculated double, as ew ever attain the twenty-five-year pension limit. The dissemnation of trachoma by the cushions in cars was reported from he eastern provinces. The inexpensive, disinfectant soap—Dr. Graf's byrolin—was recommended for railroad purposes, indorsed by the higher authorities. The duties of the railroad hysician include, it was asserted, the hygienic supervision of mployes' waiting-rooms and dwellings, of their clothing and f their leisure hours, as the safety of the traveling public emands a healthy mind and body in everyone connected with he running of a railroad.—*Munich Med. Woch.*, September 20.

Electric Treatment of Catarrhal Affections of the Adnexa.—The *Bulletin d'Electrotherapie* for August, is entirely devoted to description of the cure of sixteen cases of chronic endometrisis and metritis and complicating salpingitis, with or without varitis. In one case there was also an inflammatory tumor of he right adnexa as large as an orange; in another the cervix was ulcerated. All were completely cured without surgical ntervention, with anatomic regression of the lesions, by Aposoli's method of electric treatment, in fifteen to twenty fiveminute seances. Nine have borne children since. All have been seen from one to several years afterward and the permancy of the cure established. Negative, the continuous current galvanic) acts as a resolvent; positive, weak, as a sedative and decongestive; strong, as a sterilizer, microbicide and modifier of the uterine mucosa. The tubes contract, evacuate their contents, and the entire commotion gradually subsides.

Artificial Cornea for Leucoma.—T. v. Shröder presented a patient at the meeting of the St. Petersburg Medical Society, April 28, whom he had cured of leucoma totale corneæ by the introduction of an artificial cornea made of rock crystal and platinum, with several small hooks at the rear of the platinum setting, which bore into the leucoma tissue and hold the pro thesis quite firm. Salzer of Munich found that rabbits bore a similar contrivance a year without inflammation (1895). Schröder's patient was blind from lime corrosion in the other eye, and the leucoma had developed after smallpox in childhood. The crystal cornea showed a tendency at first to work its way forward, but a narrow band of tissue soon formed around the edges and held it in place. There was no pain, no inflammation at any time and the tension was always normal. He counts fingers at 2.25 meters and recognized colors. The eye does not water except with very bright light; with an ordinary shield it bears the daylight without trouble. An extremely delicate gray membrane formed over the back of the crystal, soon after its introduction, but it has not increased in thickness during the thirteen months since, and the results are considered satisfactory enough to warrant the application of the method on a larger scale. A similar membrane formed rapidly and so thick in Salzer's one case that the vision was only slightly improved by the operation. He attributed this to the profuse hemorrhage during the trephining. The simple technique is described in the *St. P. Med. Woch.* of September 11.

Annual Report of the Craig Colony.—The annual meeting of the Board of Managers of this Institution was held at the Colony on the 11th instant, and the following officers of the Board were re-elected: Frederick Peterson, M.D., president; H. E. Brown, secretary; John F. Connor, treasurer. The annual report of the Medical Superintendent, Dr. William P. Spratling, was presented and read. The most gratifying feature of the report was the discharge of seven patients during the year as recovered. It was also reported that marked improvement had taken place in a vast majority of all cases admitted to the institution. The industrial showing for the year was exceedingly gratifying, the value of all articles grown on and manufactured by the Colony during the year amounting to $36,889.03. Eighty-six per cent. of all male patients and 83 per cent. of all female patients were reported as engaged in labor designed to reduce the cost of maintenance. The Medical Superintendent called attention to the fact that he had on file, on the first day of October, applications for the admission of over 600 patients that he could not receive on account of lack of room, and in view of the great pressure that is becoming greater each day for the admission of patients, the Managers decided to ask the coming Legislature for a large sum for dormitory construction. It is sincerely to be hoped that in view of the value of this institution and its benefit to mankind, which benefit has already been amply demonstrated, the New York Legislature will see fit to grant any reasonable request that the managers of the institution may make.

Fat Embolism in the Lungs from a Medico-legal View.—Carrara found 27 cases of fat embolism in the lungs in 102 cadavers at the Vienna Medico-legal Institute. It was especially noticeable in 13 out of 17 cases of fractures; the negative cases included 3 of fractured ribs and 1 of fractured ribs, sternum and radius. It was found even in cases in which death had followed the injury at once. There is nothing characteristic about the symptoms to distinguish it from shock and concussion of the brain. The discovery of abundant and diffuse fat embolism is of great importance in deciding the cause of death. The findings were positive in 7 out of 28 cases of affections of the heart, vessels and kidneys, but, of course, the fat may be derived from fatty degeneration of these organs and the not infrequently agonal injury may participate in the formation of the embolism. It was also noted in the case of a boy of 12 years, whose knee had been crushed and ileum ruptured; the rapid peritoneal absorption of the fat escaping from the intestine seemed to have co-operated in the production of the embolism. It was noted once in 5 cases of fetal phosphorus intoxication, but in 13 cases of burns it was found 6 times. He considers fat embolism an important factor in the fatal termination of extensive burns, as the liberation of the fat and its entrance into the circulation is favored by the

simultaneous injury to the blood and lymphatic vessels, and also by the even momentary liquefaction of the fat by the heat.—*Munich Med. Woch.* from *Friedreich's Blatter*, No. 4.

Female Medical Inspector at Bombay.—The Bombayans, or some of them, have entered a complaint to the officials reflecting upon the action of a female physician and asking redress, by means of a considerable outlay of British gold, for an alleged desecration of one of their temples by her. It would appear, says the *Missionary Review*, that this physician, acting under a governmental appointment, had entered the temple in search of cases of plague. That the sensibilities of this people are very acute will be seen from the following quotation from their petition, which says: "This lady, against our most serious remonstrances, entered into the temple and desecrated the same and rendered it unfit for worship and for other religious purposes for which the same was established. By the aforesaid unlawful conduct of the said lady, your petitioners and their coreligionists have suffered considerable mental affliction, and their religious sensibility has been rudely and unnecessarily disturbed. Your petitioners further state that the efficacy of the said temple as a place of worship and religion having been destroyed by the desecration aforesaid, it will cost a considerable sum of money to celebrate the ceremonies and perform the religious rites necessary to purge the said temple from its desecration aforesaid, and to make it available again as a place of worship and religion, although not in their pristine state."

Professional Liberty and Practical Puericulture were the subjects treated at the recent Italian State Medical Congress at Venice. The absurdity and dangers of placing hospitals and asylums in the hands of non-medical political campaign workers were discussed and the constant restrictions of the professional liberty of the physicians in charge, and physicians in general, described and denounced. A committee was appointed to investigate the subject and suggest means to remedy the existing conditions, which in many cases tend to defeat the objects for which the institution was founded. Massalongo described the way in which infants are sacrificed to inherited traditions and prejudices by the ignorant agricultural class; kept in a dirty bed in a smoky corner of the kitchen, all the light and air entering by a single door, the floor, the damp, trodden earth, covered with the excrements of domestic animals. The infant remains there a large part of the day, if not all the time, fed with extreme irregularity, the doorshut "to keep out the cold in winter, the heat in summer." The modern bacteriologist could not imagine a better culture for infective germs of all kinds. "Dirt seems to be one of the conditions of the existence of the contadini; a bath, sponging off with cold water, is in their opinion the cause of every ill." Even the better classes are ignorant of infant hygiene. He urged a rigorous propaganda on the part of physicians, citing what has been accomplished in France where the Roussel law, vigilant inspection and supervision of nursing children, assistance of mothers during pregnancy and confinement and penalties for desertion and maltreatment, are already accomplishing remarkable results in diminishing infant mortality and raising the physical standard. He recommended the establishment in each province of a committee for the protection of nursing children with a sanitary inspector and assistants who would instruct the people in the principles of practical puericulture, and also suitable legislation.—*Gazz. d. Osp. e d. Clin.*, September 18.

Superintendent Can Contract.—In the case of the Mt. Wilson Gold & Silver Mining Company vs. Burbidge, brought by the latter party against the former, there was evidence that when a certain miner in the employ of the company was hurt, the general superintendent had him taken from the mine to the mill, and ordered him taken from there to town. No witness stated that the superintendent ordered him taken to the plaintiff's (Burbidge's) hospital, but it was in evidence that the superintendent was at the hospital the next day, and told plaintiff to take good care of the man and it would be all r This evidence, the court of appeals of Colorado thinks sufficient to justify a finding that the services of the pl were rendered at the request of the superintendent. further stating that this miner, while in this mining comp employ, was injured by machinery which the latter's sup tendent was engaged in operating for it, and that his required attention, the court says that it does not think his removal to the hospital and his nursing while there so disconnected from the mining company's business as outside of the presumptive authority of the superinten As to the company's order that no more bills of that should be paid, after paying some of the bills occasioned by injury, among which was the carriage bill, the court says the fair inference from this is that before the order was the superintendent had authority to contract such bills that the order was intended as a revocation of that autho that, as the order was issued after the carriage bill and other bills to which it had reference were contracted, it w be presumed, nothing appearing to the contrary, that it issued after the services of the plaintiff were engaged; that, the plaintiff having been suffered to nurse and car the injured man until he was cured, without being notifi the order and relying on the responsibility of the company failure even to make an attempt to rebut the presumptio its superintendent's authority, inasmuch as the facts we its possession amounted, under the circumstances, to an mission that he was possessed of the necessary power.

Cervantes as Patient and Physician.—A recent medical th accepted by the University of Paris, had for its theme medical aspects of the life of the immortal Spanish auth from which the *British Medical Journal* has culled no few interesting facts, among which is the tradition that C vantes both studied and practiced the healing art. He born in October, 1547, passed a life full of ill-health, suf ing and misfortunes of every kind, and died on April 23, 1 He contracted malaria during a visit to Rome early in and on the very morning of the famous battle of Lepan Sept. 7, 1571, he was so ill with ague, that the captain the vessel on which he served tried to induce him to rem below. He insisted on fighting, however, and received th arquebuss wounds, two in the chest and one on the left ha which was permanently disabled. He was six months hospital at Messina, and his wounds were yet incomplet healed when four years later he was made prisoner by Alger corsairs on the high seas, Sept. 26, 1575. For five years was held captive by the Moors, suffering much ill-usage their hands, but at last forcing them, out of fear of influence which his indomitable spirit gave him among fellow-prisoners, to set him free. He died of dropsy, pro bly of cardiac origin, but there is really no evidence on point. There is a tradition that Cervantes studied medic and there are in his works many passages which show that had a considerable acquaintance with the art of healing as was understood in his day. During his Algerian captivity ministered to the needs of his fellow-prisoners in sickness w a skill which bespeaks, if not special training, a considera experience in dealing with disease. How close and accura an observer he was is shown by the wonderful picture of de sional insanity which he gives to "Don Quixote." The wri of the thesis points out that he anticipated Pinel in the ratio treatment of insanity. The books of chivalry which disorder the brain of the Knight of the Sorrowful Countenance destroyed, and every effort is made to create a new envir ment for him, his very delusions being skilfully taken adv tage of to this end. It is somewhat strange that the wri

ld have made no reference to Sancho Panza's famous ician, who, in his strict view as to diet, may perhaps be ed upon as the scientific forerunner of Sir Andrew Clark. uotes, however, an apothegm that the "stomach is the atory in which health is manufactured," which shows Cervantes had very sound views as to the important rela- of the digestive to the other functions of the body.

mber in Medicine.—The ancients employed amber as a medi- and it is still prescribed by physicians in France, Ger- y and Italy. Several chemists in Paris keep it constantly tock. It has been worn by ladies and children from time emorial as an amulet, sometimes carved into "amphoræ," has been pronounced of service either taken internally or n around the neck. Callistatus gave the name of Chryse- ron to amber of a clear golden color, which, worn round neck, cured ague; ground up with honey and rose oil, it a specific for deafness, and with Attic honey, for dimness ight. But to come to more recent times, Pereira says in third edition of his "Materia Medica," published in 1853, t amber was not even then employed as a medicine in this ntry, but that "it was formerly used in chronic catarrhs, enorrhea, hysteria, etc., and was given either in the form a powder, in doses of ten grains to a drachm, or in that a tincture, a formula for both which is contained in some the European formularies. An old book by the chief phar- cist of Louis XIV of France has this paragraph: "What ay may perhaps seem strange to those who do not know e great use there is of amber in China and among the sav- es, as well as in Europe; but the greatest consumption of it in Austria, Germany and Poland, and in the neighborhood Venice, and the Venetians were the first that brought it to such a vogue and fashion thereabout, there being few peo- e in Lombardy, or along the Po, but wear amber necklaces, lieving they keep them from quinzies and other ill effects of e neck and throat to which they are very subject by reason the bad waters they are forced to drink in those parts. esides the great use of yellow amber for trinkets, it is of me use, too, in medicine, in the form of troches made from e powder, and which are given to restrain the spitting of ood and to stop dysenteries and the like. Dose from ten to thirty six grains in an appropriate vehicle; also from pow- er of amber with spirit of wine is drawn a yellow tincture ndowed with a great many good qualities, especially in oplectic and epileptic fits and paralytic cases, taken from n drops to a dram in any agreeable liquor."—*Chemist and ruggist*, January 29.

Denver.

Dr. F. E. Waxham has removed to Chicago. The Denver nd Arapahoe Medical Society has unanimously elected Dr. Waxham an honorary member.

Dr. Hobart E. Warren was appointed to the chair of Anat- my in the Denver University, vice Dr. C. D. Spivak, resigned.

Dividends.—The Denver committee of arrangements of the A. M. A. has not only accomplished its work in a most satis- actory manner, but its finishing touches startled all the con- tributors to the fund, when they received dividends amount- ng to one-third of their contributions. After having dis- tributed the dividends, Dr. J. T. Eskridge, the treasurer, found himself encumbered by a residue of $264.54, which sum was donated to the Colorado Medical Library Association.

Detroit.

Bureau of Public Health.—At the last meeting of Wayne County Society the question of the bureau of public health came up for consideration. Dr. C. Henri Leonard stated that as Mr. Corliss, the representative from Michigan, had practi- cally killed the bill for the establishment of a bureau of public health, which had been presented at Washington, and which had been endorsed by every medical society of importance in the United States, including the American Medical Associa- tion, he would move that a committee of three be appointed by the president, whose duty it would be to sound the candi- dates for the House of Representatives and inform the medical profession in Michigan which of the candidates favored the proposed bill. This man should receive the support of the entire profession, irrespective of party. The motion was seconded and carried, and a committee will be appointed by the president in accordance with the wish of the society.

Health Report for week ending October 15: Deaths 79, under 5 years 28; births 61, male 29, female 32; diphtheria 7, new cases 11, 6 recovered, 2 died, 10 remaining sick; scarlet fever 8, new cases 5, 1 recovered, 1 died, 11 remaining sick; smallpox 4, 4 remaining sick.

The proposition to amalgamate the Wayne County Medical Society and the Detroit Medical and Library Association has fallen through. The committees from the two societies for the purpose of considering this subject, came to the conclusion that, as both societies were incorporated under the laws of Michigan, it would be impossible to vote themselves out of existence without the unanimous consent of the members of both societies. This, of course, was out of the question, so the executive officers of both societies concluded to drop the subject.

Philadelphia.

Cannon Fired by Students.—On the night of October 7, some students of the University of Pennsylvania hauled a can- non into the doorway of Houston Hall and fired a heavy load which awaked the neighbors for miles around besides arousing the patients in the University Hospital to a high state of excitement and breaking nearly every window in the front part of that building. A "Student Committee," composed of the presidents of the classes, has decided to make a thorough investigation and are now making requests for all those who participated to come forward and pay for the damage to the buildings. Those who confess and pay up will not be censured, but any offender who may subsequently be found will be turned over to the faculty to be dealt with in a summary manner.

The Blood of Typhoid Patients.—Since Woodward first originated the term "typho-malarial fever," the profession has been much interested in finding out the percentage of cases of typhoid fever which may be complicated with malaria. Abun- dant opportunity has recently been furnished from the fact that so many soldier patients have been brought to this city from infected areas of the south. While report of the work done at the Pepper Laboratory has not been made public, it is stated that enough is known to justify the assertion that the two diseases *may* exist concurrently. Several months may elapse before this work will be entirely completed.

Mortality.—The number of deaths for the week ending October 15 was 331, a decrease of 77 over the previous week and of 53 over the corresponding period of last year. The principal causes of death were: Alcoholism, 2; apoplexy, 13; nephritis, 17; cancer, 11; cholera infantum, 6; tuberculosis, 58; croup, 6; diabetes, 4; heart disease, 24; inanition, 12; pneumonia, 13; appendicitis, 4; marasmus, 18; old age, 15; suicide, 3; tetanus, 1; uremia, 4; whooping-cough, 7.

Infectious Diseases.—This week: Diphtheria, 115 cases, 21 deaths; scarlet fever, 18 cases, 1 death; typhoid fever, 200 cases, 11 deaths. Last week: Diphtheria, 107 cases, 22 deaths; scarlet fever, 25 cases; typhoid fever, 162 cases, 14 deaths.

Dr. White Resigns.—Dr. J. William White, Professor of Clinical Surgery in the University of Pennsylvania, has sev- ered his connection with the surgical staff of the Philadelphia (Blockley) Hospital, to which he was elected in 1892. It no doubt is a source of much regret to Dr. White to sever his relations with this time-honored institution, yet the new duties devolved upon him at the University made such action com- pulsory. Owing to the continued illness of Dr. John Ash- hurst, Dr. White will have entire supervision over the clinical

material during the coming term. The unsurpassed clinical material afforded by the Blockley Hospital makes the membership on the staff a coveted one both on the part of the recipient and also on the part of the University of Pennsylvania, which has all the privileges and advantages offered by this hospital. Dr. Charles Frazer, a nephew of Provost Charles Harrison, will doubtless succeed Dr. White on the surgical staff of Blockley, but no definite action will be taken in the matter until the next meeting of the Board of Charities, to be held next month.

PENNSYLVANIA HOSPITAL CLAIMS PRIORITY.—Since the war is now over and the soldiers are being cared for in well-equipped hospitals all over the land, the question has arisen as to the first one to volunteer its services after the call to arms. While the Medico-Chirurgical and University Hospitals have been most active in bringing the sick soldiers to this city, another hospital here produces proof of its priority in this matter. A letter of Dr. Thomas G. Morton to Surgeon-General Sternberg dated April 21, has been printed in one of the daily papers here, and serves to justify this claim.

COMPULSORY VACCINATION.—The Board of Health, after making investigation of the manner in which vaccination is being avoided by the children in the public schools of the city, have recently sent out a printed circular to all of the authorities of the different schools, calling attention to the following Act of the Assembly approved in 1895, as follows: "All principals or other persons in charge of any public, private, parochial, Sunday, or other schools are hereby required to refuse admission of any child to the schools under their charge or supervision except upon a certificate signed by a physician, setting forth that such child has been successfully vaccinated or that it has previously had smallpox." Violations of this law will be summarily punished by the Board of Health.

MEMORIAL GATEWAY.—A committee has been appointed for the erection of a suitable memorial to all soldiers of the University of Pennsylvania who participated in the late war. It will be remembered that one graduate lost his life early in the struggle, and the name of Osgood still lingers in the memory of all the alumni, while the unfortunate death of Surgeon Gibbs, soon after the first landing was made on Cuban soil, makes this memorial all the more appropriate. To this end a large number of the Alumni Association of the University will be appointed to raise sufficient money for the erection of a memorial gateway at the entrance of the college campus at Thirty-Fourth Street and Woodland Avenue.

A SAILOR DEAD.—The United States officials at the quarantine station on Reedy Island, near here, were recently apprised of the death of a sailor which occurred on the steamship *Banan* while in transit from Port Antonio to this city. Subsequent examination proved that the cause of death was due to yellow fever. The steamship had on board 15,000 bunches of bananas, which will doubtless be destroyed. As the authorities have recently established a quarantine station for the purpose of guarding against the introduction of this disease, all of the necessary precautions will be taken against this vessel and members of the crew. In order to prevent the possibility of the spread of the disease from this case the vessel was ordered out to sea to bury the body of the unfortunate sailor.

NEW CHILDREN'S HOSPITAL.—At a meeting held recently in Germantown, the public-spirited citizens of that place organized for the purpose of erecting a children's hospital in that district of Philadelphia. Dr. Thomas Brockbank was elected president and Dr. H. Van Buren secretary. It is proposed to model the hospital after the St. Christopher Children's Hospital.

CHARITY BEQUESTS.—The will of Henry Pfander, which was admitted to probate recently, makes the following bequests to charity: To the Jewish Hospital Association, $2000; Jewish Foster Home and Orphan Asylum, $2000; Jewish Maternity Association, $1000; Society of the United Hebrew Charities, $1000. Several other charitable bequests are made.

WITHOUT A LICENSE.—According to one of the papers here a man by the name of H. P. Gorman of Philadelphia, was arrested at Carlisle, Pa., on October 3, for practising medicine without a license, and failing to give bond, was committed to prison, where he will remain until the November term of court.

LECTURES IN SURGERY.—Owing to the continued illness of Dr. John Ashhurst, professor of surgery at the University of Pennsylvania, Dr. H. R. Wharton will give the didatic lectures this year to the graduating class, under the supervision of Dr. Ashhurst. Dr. Wharton has been assistant to Dr. Ashhurst for several years, and is author of a work on minor surgery.

ENSIGN POWELSON.—Ensign Powelson, while on board the *St. Paul*, was recently injured by the breaking of an elevator and was taken to the Episcopal Hospital, where he will remain for several weeks, after which he will return to his home in New Jersey.

VERDICT OF $3500.—At Morristown, adjacent to Philadelphia, a blacksmith by the name of William Force was recently awarded damages in the sum of $3500 against his attending physician, Dr. Harvey F. Scholl, for improper treatment rendered to a fractured leg.

Washington.

HEALTH OFFICER WOODWARD SUSTAINED.—The health officer recently found it imperative to inform the Commissioners of the District, that the Freedman's Hospital authorities were violating the contagious disease regulations, that they had recently turned away a case of diphtheria from the institution and had not notified the Health Department, as required by law, of the existence of such a case. The Commissioners referred the matter to the Secretary of the Interior who, in reply, transmitted a copy of the report submitted to him by the Board of Visitors to the Hospital, in which the Hospital authorities claimed to have erred in the matter through misconception. The Secretary added: "The attention of the Surgeon in charge of the Hospital has been called to the direliction of duty complained of and, in the future, he will strictly comply in every respect with the requirements of the law."

SURGEON-GENERAL STERNBERG'S REPLY.—The following reply was sent by Surgeon-General Sternberg to the Commission investigating the conduct of the war: "The number of medical officers allowed by law is inadequate in times of peace. The total number allowed is 192. There are at present 13 vacancies. The administration of the surgeon-general's office and Army Medical Museum requires 6. Eleven are on duty at medical supply depots and as chief surgeons of military departments. One is at the Soldier's Home, 56 are at general hospitals, on hospital ships and at garrisoned posts. Four have been disabled since the commencement of the war by sickness. Five are on duty as chief surgeons of army corps. This leaves 97 medical officers available for duty with troops in the field. Of these 35 have been appointed brigade surgeons of volunteers and are distributed among the various army corps. Since the declaration of war, the loss by death has been 2, and 23 are now absent from duty on sick leave. This deficiency in regular medical officers has made it necessary to employ more than 650 contract surgeons. Most of these doctors from civil life are doing good service, and many of them are thoroughly well-equipped physicians and surgeons, with ample hospital experience; but it has been impossible to make a careful selection owing to the great pressure of business in the Surgeon-General's office, and the urgency has been so great that it has not been practicable to have examining boards pass upon their qualifications. I have endeavored, so far as possible, to obtain satisfactory professional indorsement before making a contract with an applicant. The number of applicants have been so great and the personal visits of applicants and their friends so num-

s, as to constitute a serious embarrassment in conducting usiness of my office. In addition to this, there have been inted by the President eight corps surgeons, with the rank eutenant-colonel; 24 division surgeons, with the rank of or, and 86 brigade surgeons; also 3 medical officers for each e regiments of the United States infantry, cavalry and neers. All voluntary regiments have 3 medical officers ap- ted by governors of States. Referring to the alleged defi- cy of medical officers with the Fifth Army Corps at Santi- I would say, that this Corps, upon leaving Tama, had with regular medical officers and 20 contract doctors, a total of or over 4 per 1000 of the strength of the command, which, I informed, was about 16,000. Additional medical assistance s nt by the hospital ship *Relief* which arrived at Siboney 7 with 20 doctors aboard. There was also some volunteer stance by Dr. Lesser of the Red Cross Society, Dr. Rud- g of the Swedish Navy and several surgeons of the navy n ships in the vicinity. It has not been the expectation of medical department that every wounded man would im- diately receive the attention of a surgeon. No modern army kes provision for so large a number of medical officers as this uld require. But attached to our army there is a corps of -combatants, known as the hospital corps, which is the anized and authorized Red Cross of the army. At the out ak of the war we had 1800 hospital corps men in service. present there are more than 6000. These men wear a bras- d upon the left arm, bearing the red cross of the Geneva nvention. We have done our best in instructing them to e first aid to the wounded, and in the majority of cases a t-aid dressing properly applied by one of these men is all t is required. All of the surgeons who have come from the nt have testified to the remarkable results obtained from the mpt application of aseptic dressings by our hospital corps n and by the soldiers themselves, or their comrades. The per application of the dressings contained in the first-aid cket, which is carried by every soldier, is, under existing gulations, a matter in which every enlisted man has special structions. For some time past this instruction has been ven, first by our medical officers to the company officers, and them to the enlisted men."

HEALTH OF THE DISTRICT.—The report of Health Officer oodward for the week ended October 8, shows the total num- r of deaths to have been 111, of which number 63 were white d 48 colored. There were 155 births reported, 102 white and colored. At the close of the week there were 115 cases of phtheria and 79 cases of scarlet fever under treatment.

MEDICAL SOCIETY.—At the meeting of the Medical Society ld on the 10th inst., Dr. Lamb presented the specimens d gave the history of: *a*, valvular disease of the heart; *b*, a ecimen from the brain showing old and recent hemorrhage d *c*, fracture of spasmodic origin of the sesamoid bone of a rse. Dr. Armstrong Hopkins addressed the Society on med- al and surgical work in India. She described her personal periences while connected with the British hospitals, and as missionary physician from the United States, and gave an count of the habits, religion, customs and racial peculiari- es of the people of India, closing with an amusing account of professional visit to one of the harems of a local King, where e met in consultation with six local practitioners. Dr. A. A. King delivered an eulogistic address on Dr. George Byrd arrison, a deceased member of the Society. Dr. Freaderick eported resolutions on the death of Dr. Drawbaugh.

NURSES' GUILD.—The organization of nurses, known as the uild of St. Barnabas for Nurses, has just completed a three ays' convention in this city. Their special object is to secure home for nurses in Washington and they have opened a tem- orary register for nurses at the Central Dispensary and Emergency Hospital. The following physicians were elected o honorary membership: Drs. Shands, Mundell, Tompkins, Morse, Burnette, Hawkes, Carr, H. L. E. Johnson, J. T. Johnston, Hickling, Portman, Hiberger, Rixey (U. S. A.), T. R. Stone, Fox, Dufour, Robin, French, A. A. Snyder, Maddox and V. B. Jackson.

Societies.

The following recent meetings are noted:

Connecticut.—Semi-annual of the Hartford County Medical Association, October 19.

Illinois.—Chicago Medical Society, October 12; Fulton County Medical Society, Canton, October 1; McDonough County Medical Association, Macomb, October 4; McLean County Medical Society, Bloomington, October 6.

Kansas.—Golden Belt Medical Society, Solomon, October 7.

Kentucky.—Clark County Medical Society, New Albany, October 4.

Massachusetts.—Hampden District Medical Society, October 18.

Michigan.—Grand Rapids Academy of Medicine, October 3; Wayne County Medical Society, Detroit, October 6.

Minnesota.—Crow River Valley Medical Association, Litchfield, October 6.

Missouri.—St. Joseph Medical Society, October 11; St. Louis Medical Society of Missouri, October 15.

New York.—Albany County Medical Society, Albany, October 10; Associated Physicians of Long Island, Patchogue, L. I., October 8; Monroe County Medical Society, Rochester, October 6.

Ohio.—Muskingum County Medical Society, Zanesville, October 13.

Pennsylvania.—Luzerne County Medical Society, Wilkesbarre, October 5; Susquehanna County Medical Society, New Milford, October 4.

Utah.—State Medical Society, Salt Lake City, October 7.

Wisconsin.—Rock County Medical Society, Janesville, October 7.

THE PUBLIC SERVICE.

Sanitary Measures Against the Spread of Typhoid Infection in Camps.—Surgeon-General Sternberg has sent a communication to the chief surgeons of the troops in the field, commending it to their careful consideration and as of value to them in their efforts to limit the spread of typhoid fever in their commands. In his letter transmitting this communication, he says that where the conditions are not entirely satisfactory for digging sinks of the proper depth, the recommendations of the Board should be adopted, and water-tight troughs, as suggested, be used. He invites special attention to the recommendation of the Board that "every opportunity should be taken to expose blankets and bedding to the sunlight," and states that infected tents, clothing and bedding should be disinfected by steam, by boiling water or by a 5 per cent. solution of carbolic acid.

The communication and its endorsements read as follows: The Board of Medical Officers convened per S. O. 194, par. 40, c. s., A. G. O., Washington, D. C., Aug. 18, 1898, to inquire into the causation and spread of fever in the camps in the United States, beg to make the following provisional report:

Although we are not as yet ready to come to a definite conclusion concerning the causation and means of spread of this disease, we feel quite thoroughly convinced that the fly has been an important factor in its dissemination. We are also convinced that so long as the present method of disposing of fecal matter in the camps is continued it will be quite impossible to eradicate this disease. We believe that the bacilli are now being daily disseminated by flies, and that the tentage, bedding and clothing of the soldiers have become more or less infected with the germs of typhoid fever and we think that radical steps should be taken to destroy this infection. Until this is done we are convinced that changes of camp sites will be of little or no avail. We therefore feel called upon at present to make the following recommendations pertaining to this matter:

1. We recommend that the sink be universally and wholly replaced by the following contrivances: Each regiment should be furnished with three wooden boxes, lined with galvanized iron and made perfectly water-tight. Each of these boxes is designed to serve as a battalion sink; the dimensions of each box should be as follows—length fourteen feet, width two feet, depth eighteen inches. This box should be set at a slight incline, so that one end will be two to four inches lower than

the other end. If possible, there should be placed over the upper end of each box a water-tap, this can only be done when water is piped into the camps. When this is not feasible, water will have to be poured into the trough. The lower end of this trough should have a three-inch opening with a conductor leading outside the house and opening over a pit or well. The box end of this opening should be guarded by a tube of the same diameter and about fourteen inches high, with a curved handle at top, by means of which it can be lifted. For use each of these troughs should be filled to a depth of six inches with a 5 per cent. solution of carbolic acid or, to be more definite, there should be placed in each box one hundred gallons of water and five gallons of crude carbolic acid. This mixture should be thoroughly stirred. The feces and urine of all the men should be received into the trough; the box being provided with a suitable cover having twelve openings. A metallic trough of proper height, leading into this larger trough, may be constructed at each end for urine. Once or twice a day, as may be necessary, the contents of this box should be allowed to run into the sink or well and the material should then be immediately covered freely with earth.

Where lime has already been supplied to the camps as a disinfectant, milk of lime may be used in these boxes instead of the 5 per cent. solution of carbolic acid, and when this is done one quarter of a barrel of lime should be mixed with the one hundred gallons of water and thoroughly stirred. A similar privy of less capacity should be prepared for the officers and cared for in the same way.

The care of these privies should be made a duty of the medical officer of the regiment, and he should be held responsible for their proper condition.

We are convinced that typhoid fever will not be eradicated until the stools and urine of every man are thoroughly disinfected. Proper utensils with sufficient soap and water should be provided at each battalion sink, such as we have described, and every man should be required, in the presence of a sentinel, placed there for that purpose, to thoroughly wash his hands on leaving the sink.

2. We believe, as already stated, that the tentage, the floors of the tents and personal clothing of the soldiers, are infected and should be thoroughly disinfected. The tents may be boiled. It would be preferable to establish at each of the large camps a steam plant where the tentage and all clothing should be thoroughly disinfected. The flooring of the tents should be scrubbed with a 5 per cent. solution of carbolic acid and exposed to the direct rays of the sun for at least twelve hours. We have found many soldiers sleeping on old, dirty mattresses; these should be burned. Many infected regiments have been mustered out and their tentage and blankets turned in. Before these are issued they should be thoroughly disinfected.

Every opportunity should be taken to expose blankets and bedding to the sunlight; our inspection of various camps has convinced us that sufficient attention is not paid to this.

In the opinion of the Board, no time should be lost in the inauguration and rigid enforcement of these measures. Otherwise we are firmly convinced that typhoid fever will continue to prevail until late fall at least. Moreover, even after the fly is paralyzed by the cold weather, the infected bedding and tentage will cause a continuance of the disease.

Very respectfully,

]Signed] WALTER REED,
Major and Surgeon, U. S. A.

[Signed] VICTOR C. VAUGHAN,
Major and Division Surgeon U. S. V.

FIRST ENDORSEMENT.

WAR DEPARTMENT—SURGEON-GENERAL'S OFFICE,
Sept. 30, 1898.

Respectfully referred to Lieut.-Col. Charles Smart, Deputy Surgeon-General, U. S. Army, for remark.

[Signed] GEO. M. STERNBERG,
Surgeon-General, U. S. Army.

SECOND INDORSEMENT.

WAR DEPARTMENT—SURGEON-GENERAL'S OFFICE,
Oct. 1, 1898.

Respectfully returned to the Surgeon-General of the Army.

The experience of the Second Army Corps during the past two months does not sustain the Board in its assertion that until radical steps have been taken to destroy infection, changes of camp site will be of little or no avail. Troops, in removing from an infected site to new ground, carry with them only the infection in men in the incubatory stage. Tents, clothing, blankets, etc., are disinfected by exposure to sun and air on the new ground. Cases developed in infected men can be removed to hospital, and in ten days or two weeks the command will be practically free from the disease, and when camped on t ground will remain free from all except sporadic cases if camp has proper sanitary government. This includes su vision of the food, water-supply, clothing, personal cleanli and cleanliness of the quarters of the men, with a suffi area in quarters, and with a flooring high enough to give circulation of air in the sub-floor space.

If the sinks are 150 yards from the quarters of the men, company sink 14 feet long and of proper depth, and the dep regularly treated with lime and dry earth, disinfection of excreta will be effected as satisfactorily as if previously m with the disinfectant material in a trough as specified.

The medical officer should not, in my opinion, be responsible for the proper condition of the privies. Thi the duty of the police officer—the officer of the day. The of the medical officer is to bring insanitary conditions to notice of the commanding officer and to make suggestions their remedy.

If change of camp site is not effected, all efforts at disi tion of clothing, blankets, tents, etc., will be unavailing the change is effected, disinfection other than by free ex ure to sun and air will be unnecessary except in spe instances of known soiling by typhoid discharges.

[Signed] CHARLES SMART,
Deputy Surgeon-General, U. S. A

CHANGE OF ADDRESS.

Adams, J. E., from 288 Huntington St. to 58 Cedar Av., Cleveland, O.
Church, W. F., from 1942 Polk St., Chicago, to 56(outh Blvd., tin, Ill.
Cox, J. E., from Bridgeport, Cal., to Carson City, N vada.
Craig, D. H., from Provincetown to 86 Charles St., Boston, Mass.
Frank, C. P., from 167 High St. to Melbourne and John, Detroit,
Fausett, R. C., from North Jackson to Olmstead Falls, Ohio.
Holman, C. J. Johnson, from 708 to 626 Monroe St., Chicago.
Hilliard, W. L., from Asheville to Greensboro, N. C.
Hosford, S. D., from 2913 W. 28th Ave. to 3411 W. 32d, Denver, Colo.
Johnson, W. H., from Robertsdale to Dudley, Pa.
Lamon, G. T., from Philadelphia to New Kensington, Pa.
Lerche, W., from Ferryville to Soldiers' Grove, Wis.
Lupinski, H., from 215 Crescent Ave. to 176 Ransom St., Grand Rap Mich.
McCarthy, W. W., from 512 to 422 Walnut, Des Moines, Iowa.
Mason, L. D., from Greenwich, Conn., to Brooklyn, N. Y.
McClanahan, Z. H., from Oneida, Ill., to Colorado Springs, Colo.
Page, J. F., from New York City to Eureka, Ill.
Rowley, W. S., from 750 63d Pl. to 1005 South State, Indianapolis, In
Rowe, J., from Chickamauga, Ga., to Ft. Sheridan, Ill.
Scherrer, E. A., from Denver, Colo., to San Carlos, Arizona.
Small, J. W., from Yonkers, N. Y., to Boston, Mass.
Smith, Gould, from Bourbon to Fairland, Ill.
Stevens, F. W., from Bloomington to 1509 3d Ave., Seattle, Wash.
Spencer, H. D., from Sexton to Oakland, Iowa.
Sloan, J. F., from Peoria, Ill., to 656 W. Adams, Chicago.
Sites, J. McKee, from Upper Tract to 309 W. Burke, Martinsburg, W.
Thorp, C. W., from Denver, Colo., to Marcellus, Mich.
Van Tuyl, H. I., from Ypsilanti, Mich., to 3133 Indana Ave., Chicago.
Walker, J. W., from Kankakee, Ill., to 153 E. 53d St., Chicago.

LETTERS RECEIVED.

Anderson, C. L., Washington, D. C.
Blakely, G. W., Washington C. H., Ohio; Burch, F. E., Glencoe, Min
Battle & Co., St. Louis, Mo.; Brink, C. A., Ord, Neb.
Chabut, D'Orville, Pittsburg, Pa.; Cole, C. B., Grand Rapids, Oh
Chicago Clinical School, Chicago.
Drummond, P. K., Chillicothe, Ohio; Donohue, M. I., Clintonvil
Wis.; Duyre, D., Burbank, Cal.; Dresel, A. F., Atchison, Kan.
Fougera & Co., E., New York City; Felts, R. L., Baltimore, Md.; F
benfabriken of Elberfeld Co., New York City; Ferguson, E. D., Troy,
Y.; Fuller, Charles H., Adv. Agency, Chicago.
Good Health Pub. Co., Battle Creek, Mich.; Gulley & Crawford M
Agency, Chicago; Gardner, G. E., Doylestown, Ohio; Gihon, A. L., M
York City.
Harris, J. J., St. Louis, Mo.; Harrison, B. H., Houston, Texas; Hum
Adv. Agency, A. L. (3), New York City; Hale, J. A., Alto Pass, Ill.; Ha
ilton, B. F., Shawnee, O. T.; Highsmith, G. I., Carrolton, Mo.
Ingals, E. Fletcher, Chicago.
Jackson, J. H., Dansville, N. Y.
Kiernan, J. G., Chicago; Kempson, J. F., New York City; Keller, W. L
Raltimore, Md.; King, P. Washington, D. C.; Kelley, I. W. & Co., Chicag
Lehn & Fink, New York City; Lercee, W., Soldiers' Grove, Wis.
Moon, W. B., Bellmont, Ill.; Murphy, John A., Cincinnati, Ohio; Ma
ton Mineral Water Co., Manitou, Colo.; Madden, John, Milwaukee, Wis
Marchand, Charles, New York City; McCarver, J. W., Coryell City, Texa
Parsons, A. W., City of Mexico, Mexico; Paquin Laboratories, Paul, S
Louis, Mo.
Reed, R. Harvey, Rock Springs, Wyo.; Reed, W. W., Fowler, Colo
Reed, B., Philadelphia, Pa.; Richter, R. G., Milwaukee, Wis.
Sheldon, C. S., Madison, Wis.; Simmons, George H., Lincoln, Neb.; S
Louis Medical Gazette, St. Louis, Mo.; Stoney, Emily, Chicago; Saun
ders, W. B. (2), Philadelphia, Pa.; Sherer, J. W., Kansas City, Mo.
Tyree, J. S., Washington, D. C.; Tucker's Adv. Agency, F. E. S., Batt
Creek, Mich.; Tuley, H. E., Nashville, Tenn.
Vance, A. S., Harrison, Ark.; Vinsonhaler, F., Little Rock, Ark.
Walker, F. E., Bigelow, Minn.; Wainwright, J. W., New York City
West, H. A., Galveston, Texas; Weis, E. W., Ottawa, Ill.; Whitford, Wm
Chicago.
Yemans, C. C., Ypsilanti, Mich.; Yucca Mfg. Co., Jackson, Mich.
Zenner, Philip, Cincinnati, Ohio.